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MANUFACTURING  
METHODS &  
TECHNOLOGY

PROJECT EXECUTION  
REPORT

FIRST CY 80

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PREPARED BY

USA INDUSTRIAL BASE ENGINEERING ACTIVITY

AUGUST 1980

MANUFACTURING TECHNOLOGY DIVISION

ROCK ISLAND, ILLINOIS 61299

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER  FIRST CY80	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle)  MANUFACTURING METHODS & TECHNOLOGY PROJECT EXECUTION REPORT		5. TYPE OF REPORT & PERIOD COVERED  Semiannual 1 Jan 80 - 30 Jun 80
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)  Ms. L. S. Hancock		8. CONTRACT OR GRANT NUMBER(s)  N/A
9. PERFORMING ORGANIZATION NAME AND ADDRESS  US Army Industrial Base Engineering Activity ATTN: DRXIB-MT Rock Island, IL 61299		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS  N/A
11. CONTROLLING OFFICE NAME AND ADDRESS  US Army Industrial Base Engineering Activity ATTN: DRXIB-MT Rock Island, IL 61299		12. REPORT DATE  August 1980
		13. NUMBER OF PAGES  194
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)  US Army Materiel Development & Readiness Command ATTN: DRCMT, Office of Manufacturing Technology 5001 Eisenhower Avenue Alexandria, VA 22333		15. SECURITY CLASS. (of this report)  UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE  N/A
16. DISTRIBUTION STATEMENT (of this Report)  DISTRIBUTION UNLIMITED		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)  DISTRIBUTION UNLIMITED		
18. SUPPLEMENTARY NOTES  N/A		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  Manufacturing Methods & Technology MMT		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This document is a summary compilation of the Manufacturing Methods and Technology Program Project Status Reports (RCS DRCMT-301) submitted to IBEA from DARCOM subordinate major commands and project managers. Each page of the computerized section lists project number, title, status, funding, and projected completion date. Summary pages give information relating to the overall DARCOM program.		



DEPARTMENT OF THE ARMY  
US ARMY INDUSTRIAL BASE ENGINEERING ACTIVITY  
ROCK ISLAND, ILLINOIS 61299

16 SEP 1980

DRXIB-MT

SUBJECT: Manufacturing Methods and Technology (MMT) Program Project Execution Report, First Half CY80

SEE DISTRIBUTION

1. Reference Draft AR 700-90, paragraph 3-8g(1), undated, subject: Logistics, Army Industrial Preparedness Program.
2. The Project Execution Report is a summary compilation of the MMT Program Project Status Reports (RCS DRCMT-301) submitted to IBEA from DARCOM subordinate major commands (SUBMACOM) and project managers. This document is used as a management tool for monitoring the progress of MMT projects. There are separate sections in the report showing projects that are new, active, and completed. Also, included is a section on project slippage and a discussion of the overall DARCOM Program.
3. Persons who are interested in the details of an individual project should contact the manufacturing technology representative at the SUBMACOM. A list of those representatives is included in Appendix III to this report. The Project Officer for this task is Ms. L. Hancock, AV 793-6521.

J. R. GALLAUGHER  
Director  
Industrial Base Engineering Activity

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## INTRODUCTION

### BACKGROUND

The Army Manufacturing Methods and Technology (MMT) Program was established in 1964 as a part of the Army Production Base Support (PBS) Program. The MMT Program has goals of improving existing manufacturing technology, translating new technology into production line processes, and supporting the modernization and expansion of the military hardware production base. The program is governed by the provisions of AR 700-90, Chapter 3, which has been recently updated and submitted to the field in its draft form.

### COMPOSITION OF THE REPORT

This MMT Project Execution Report provides the status summaries of 521 active projects which have a total authorized cost of \$234,861,000. Total MMT program statistics, as well as the summaries of the active projects are also included. The report is compiled, edited, and published for HQ, DARCOM by the Manufacturing Technology Division of the Army Industrial Base Engineering Activity (IBEA) in accordance with Draft AR 700-90, paragraph 3-8g(1).

Distribution of this report is extended to Army materiel developers and users and to counterparts in the Navy and the Air Force. Inquiries on the detailed technical aspects of any individual project may be answered by the MMT Program representative of the action command under which the project was completed or is being executed. Inquiries or suggestions concerning this report or other facets of the MMT Program may also be directed to the Manufacturing Technology Division of IBEA.

The report is composed of five major sections:

a. Discussion - A summary of information that relates to the overall DARCOM program. Included is information concerning the concepts of "project" and "effort" work units. Also included is data on funding history and changes, and overall summary data for projects still under execution.

b. Project Slippage - Data on the trends in the timeliness of MMT project execution.

c. Projects Added 1st Half, CY80 - A list divided by organization of all projects funded during the first half of CY80. Included is a narrative of the problem for each project.

d. Projects Completed 1st Half, CY80 - A list divided by organization of all projects completed during the first half of CY80. Included is a narrative of the final status for each project.

e. Summary Project Status Report - These reports are divided by organization and include a summary of funding by fiscal year and a narrative status for each project.

MMT PROGRAM

DISCUSSION



# MANUFACTURING METHODS AND TECHNOLOGY PROGRAM

## OVERALL PROGRAM

Manufacturing Methods and Technology (MMT) Projects and Efforts are major elements of the Army's Manufacturing Technology (MANTECH) Program. Draft AR 700-90 succinctly describes the MANTECH objective as the improvement of the industrial readiness and efficiency of the production base for Army materiel. Further defined objectives are stated in a recently published Statement of Principles for the DOD Manufacturing Technology Program. This Statement, originating at the Deputy Under Secretary of Defense level, not only establishes ground rules for the Program but highlights the level of emphasis that the Program receives.

To attain the objectives described in the Statement of Principles, the Army funds discrete work units, called Projects, on a yearly basis. These projects, identified by a seven-digit number, contain work requests, which upon completion will result in an end product whose technical transfer can be effected. At times, in order to have a total work package which is implementable, (i.e., which can achieve the payback for which the work was funded) the scope can be of such a magnitude that total funding in one fiscal year can be an inefficient use of resources. In this event, the total work might be multi year funded, (i.e., be more than one project, each having a technically transferrable end product). These total implementable work units are called "Efforts." These Efforts can consist of many projects or just be one project, depending on the amount of work required to achieve the implementable technical goal. Efforts are identified by a four-digit number which is the same as the last four digits of a project or projects which make up the effort.

Figures 1 and 2 depict the size and growth of the MMT program since 1970. Figure 1 shows funding levels and Figure 2 deals with number of projects. In each figure, the upper curve represents all of the MMT projects for each fiscal year shown. The lower curve represents only those projects which initiated a new effort during the fiscal year shown. The difference between the two curves on each figure represents those approved dollars (Figure 1) and number of projects (Figure 2) which were approved in the fiscal year as follow-on projects to efforts initiated in prior years.

It is apparent from Figures 1 and 2 that since FY74, there has been no appreciable growth in the MMT program. When considering inflation indices, there has actually been a decline in the funding levels. The decline of the program has not been from lack of importance nor want of high level emphasis. The fiscal constraints and general decline in the overall military budget as well as audit agency reports critical of the MMT program have, in part, led to current situation. Furthermore, starting in FY72, less than 50% of each years budget has been spent on initiating new work

efforts. During that period this figure has ranged between 49 and 35%. The majority of each year's funds has been spent for follow-on projects to efforts initiated in prior years. This trend, to a degree, reflects the fact that while individual work efforts are becoming more costly due to inflation and technical complexity, the overall budget has remained relatively constant permitting the initiation of fewer new work efforts.

#### CURRENT PERIOD

There are three charts (Figures 3-5) provided on the following pages which summarize MMT project reporting and funding status for the 1st Half of CY80. The summary includes data from the Subordinate Major Commands (SUBMACOM) that have active projects and the AMMRC and DARCOM sponsored projects. Cumulative figures pertaining to project distribution and expenditures of funds on contract and in-house are provided. Completed projects are not included in this section. They are listed in a separate section on page 33 which gives a final work status for each project that was completed during this reporting period.

A summary of the MMT program (Figure 3) indicates that the number of active projects has decreased by 4% in comparison with the 1st half of CY79. In past Project Execution Reports, this comparison was made with the immediately preceding report period instead of the report period which was most comparable to the current position in the funding cycle. Because project funding generally occurs yearly instead of bi-yearly, the comparison did not provide a good review of the progression of the MMT program. In Figure 3 the comparison is now made between parallel reporting periods (1st Half, CY79 and 1st Half, CY80) in order to observe the project number and funding changes that occur within each command and within the total program. The data provided on this chart points out the previously mentioned (Figure 1) decline in funding levels and also points out successful gains in closing out projects. The authorized funding of the active MMT program decreased by 6% from 1st Half, CY79 to 1st Half, CY80. Numerically, the largest decreases were in Aviation, Ammunition, and Tank-Automotive. ARRADCOM/ARRCOM (ammunition) reflects the largest decrease in active funding level with reduction in authorized funds of \$9.7 million.

A breakout of the active projects by fiscal years is shown in Figure 4. An increased emphasis has been placed during the past two reporting periods on closing out older projects. This is now becoming more evident when a comparison is made for the fiscal years 73-76 among the last three reporting periods. During the 1st Half CY79 there were 92 active projects for these fiscal years, 61 active projects in 2nd Half, CY79 (73-76), and only 34 active projects in 1st Half, CY80. Also, there was a total of 111 projects completed overall during the current reporting period. This is the largest number of projects completed during a six-month period in the last one and one-half years. Yet, the total span of the active MMT program still remains

at seven years. The one remaining FY73 project was given a time extension to September 1980 in the last reporting period. This projected completion date has now been further extended to September 1981.

Figure 5 indicates at what rate the project funds are being expended. The percent of in-house expenditure has increased by 12% from the previous period. This is due to the large amount of FY80 funds that had just been released during the last report period and were still remaining in-house. Some of these funds have now been expended. Another observation is that the dollar amount of contract funds and in-house funds are almost equal. This 50-50 contractor/in-house ratio has been relatively consistent for the MMT program in the recent past.

Accuracy of project information depends on the quality of the project status reports submitted to IBEA from the commands. Efforts were again made this period to improve the quality of individual reports. Any report containing significant errors or inadequate description of accomplishments was sent back to the command for correction.

Accuracy also depends on a complete submission of all the project status reports for each command. In June, a call letter was mailed out to each SUBMACOM. Inclosed with this letter was a computerized listing of the projects for which a status report was required for this reporting period. There were 38 reports, which six weeks after the due date, were not submitted. This is a considerable reduction in the number of delinquent reports compared to the last report period. The following list shows the number of delinquent reports within each command.

TECOM	0
AVRADCOM	0
MICOM	21
ARRADCOM/ARRCOM (AMMO)	3
ARRADCOM/ARRCOM (WPNS)	2
MERADCOM	0
CORADCOM	1
ERADCOM	3
AMMRC/ DARCOM/ DESCOM	3
NARADCOM	0
TARADCOM/ TARCOM	1
	0

This delinquency creates a void in the information presented in the compiled report. Continuing improvement in this area will insure a more useful review of the progression of the MMT Program.

## HISTORY OF APPROVED PROJECT FUNDING

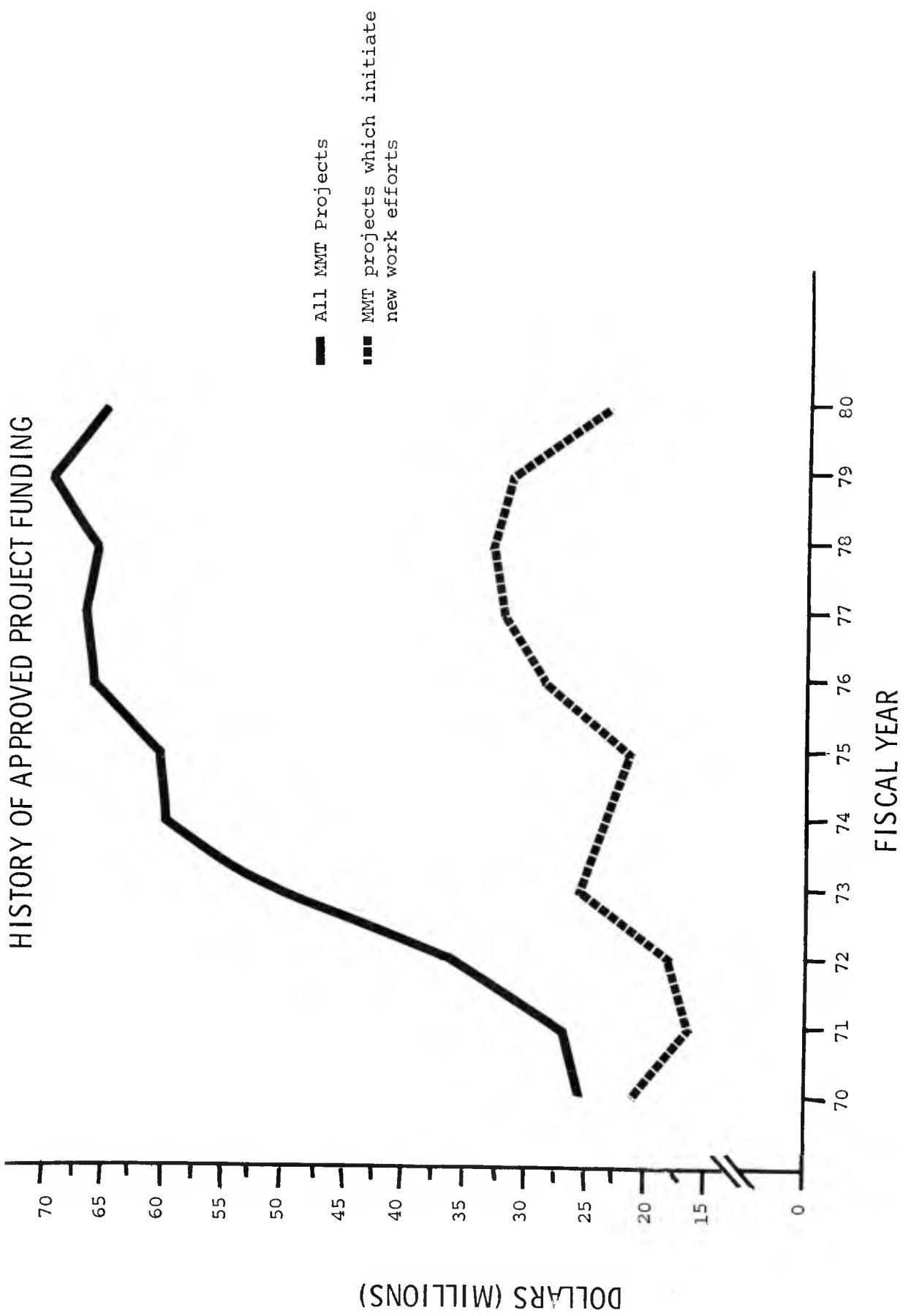


FIGURE 1

## HISTORY OF NUMBER OF FUNDED PROJECTS

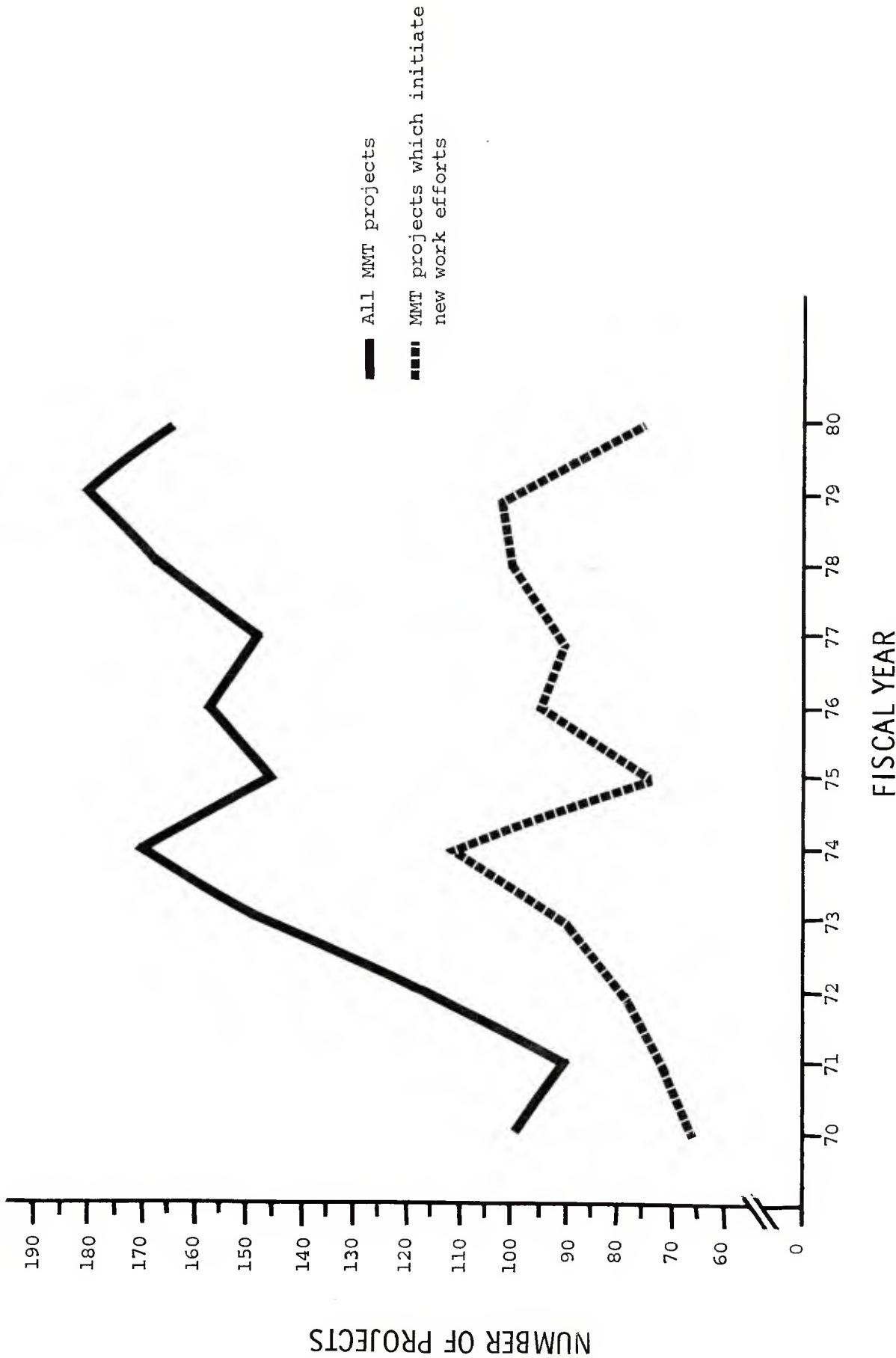


FIGURE 2

## MMT PROGRAM SUMMARY

Organization	Number of Projects			Funding Status		
	1st Half CY79	1st Half CY80	Percent Change	1st Half CY79	1st Half CY80	Percent Change
TECOM	3	3	0	2,479,800	2,438,000	- 2
AVRADCOM	72	61	-15	21,343,400	17,244,300	-19
MICOM	62	67	+ 8	24,560,000	25,545,200	+ 4
ARRADCOM/ARRCOM (Ammo)	201	190	- 5	118,162,700	108,479,400	- 8
ARRADCOM/ARRCOM (Weapons)	72	78	+ 8	12,375,300	15,178,600	+23
MERADCOM	20	19	- 5	5,184,000	5,189,900	0
CORADCOM	10	8	-20	5,052,100	3,138,100	-38
ERADCOM	45	44	- 2	24,535,500	26,075,000	+ 6
AMMRC/DARCOM/DESCOM	16	12	-25	24,236,000	16,762,500	-31
NARADCOM	4	5	+25	853,100	1,541,600	+81
TARADCOM/TARCOM	38	34	-11	12,231,000	13,268,400	+ 8
<b>TOTAL</b>	<b>543</b>	<b>521</b>	<b>- 4</b>	<b>251,012,900</b>	<b>234,861,000</b>	<b>- 6</b>

Figure 3

## ACTIVE PROJECTS BY FISCAL YEAR

Organization	73	74	75	76	7T	77	78	79	80	TOTAL
TECOM							1	1	1	3
AVRADCOM			1	2		3	10	20	25	61
MICOM				1		4	17	22	23	67
ARRADCOM/ARRCOM (Ammo)		1	4	13	2	18	41	61	50	190
ARRADCOM/ARRCOM (Weapons)	1		2	1		10	11	22	31	78
MERADCOM						1	3	9	6	19
CORADCOM				1		1	2	2	2	8
ERADCOM				4		12	5	10	13	44
AMMRC/DARCOM/ DESCOM					1	1	3	3	4	12
NARADCOM				2		1		2		5
TARADCOM/TARCOM				1	1	1	8	14	9	34
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>25</b>	<b>4</b>	<b>52</b>	<b>101</b>	<b>166</b>	<b>164</b>	<b>521</b>

Figure 4

## PROGRAM FUNDING EXPENDITURES (MILLIONS)

Organization	Projects	Authorized Funding	Contractor Expended		In-House Remaining Expended	
TECOM	3	\$ 2.4	\$ 0.3	\$*0.3 (84%)	\$ 2.1	\$ 1.6 (54%)
AVRADCOM	61	17.2	11.5	4.5 (39%)	5.8	2.3 (40%)
MICOM	67	25.5	13.7	9.4 (68%)	11.8	3.6 (30%)
ARRADCOM/ARRCOM (Ammo)	190	108.5	51.1	27.9 (54%)	57.4	29.7 (51%)
ARRADCOM/ARRCOM (Weapons)	78	15.2	3.6	2.4 (66%)	11.6	3.7 (31%)
MERADCOM	19	5.2	3.8	1.8 (47%)	1.4	0.3 (24%)
CORADCOM	8	3.1	2.1	1.4 (66%)	1.1	0.2 (23%)
ERADCOM	44	26.1	14.6	10.7 (73%)	11.5	1.5 (13%)
AMMRC/DARCOM/DESCOM	12	16.8	7.2	0.6 (8%)	9.5	8.5 (88%)
NARADCOM	5	1.5	1.3	0.6 (42%)	0.2	*0.2 (83%)
TARADCOM/TARCOM	34	13.3	7.9	5.0 (64%)	5.4	1.3 (24%)
<b>TOTAL</b>	<b>521</b>	<b>\$234.8</b>	<b>\$117.1</b>	<b>\$64.6 (55%)</b>	<b>\$117.8</b>	<b>\$52.5 (45%)</b>

Figure 5

\* All values rounded to one decimal place.

MMT PROGRAM  
PROJECT SLIPPAGE STUDY



## PROJECT SLIPPAGE STUDY

The purpose of this study is to monitor trends in the timeliness of the MMT Project Execution. Figure 1 is a slippage profile for each command and for the program as a whole. An observation of this data shows that the only significant difference in the project slippage distribution from the previous period is in the "No Data" and "0 Mo" columns. The reason for the decrease in the "No Data" slippage and increase in "0 Mo" slippage is due to the receipt of status reports for the FY80 projects. During the last reporting period, status reports were not required for most FY80 projects because they were just being funded. Therefore, the bulk of these projects fell into the "No Data" category. Now reports have been received for most of these projects (except for a small percentage of recently funded projects) and thus an increase in the "0 Mo" column has occurred.

Comparison of this chart with the project slippage study of 1st Half, CY79 shows that the only significant difference is again the decrease in the "No Data" column (5% compared to 17%). This is partially explained by a larger number of projects newly added (and having no subsequent report) in 1st Half, CY79 as those added in this report period (29 - 1st Half, CY80 to 36 - 1st Half, CY79). Also, there is a significant difference in the amount of delinquent reports (38 - 1st Half, CY80 to 62 - 1st Half, CY79). Some of the delinquent reports in the 1st Half, CY79 were for projects funded just six months before. Therefore, these projects continued to fall into the "No Data" category for more than one reporting period. A continued decrease in delinquency of project status reports will help improve the accuracy of the project slippage profile.

A problem that affects accurate project slippage reporting is the basis on which final status reports are submitted. Some organizations await financial close-out before submitting final status reports. By doing this, several months might be added to the apparent duration of the project. The general policy has been that final status reports should be submitted when the technical work has been physically completed. If outstanding financial action does not hinder project implementation, then the time required for financial close-out is not meant to be added to an indicator which measures engineering achievement. Continued emphasis on using a consistent basis for project close-out, namely technical completion, will provide a more accurate accounting of the technical life of MMT projects.

**PROJECT SLIPPAGE STUDY**

COMMAND	NO. ACTIVE PROJECTS	PROJECT SLIPPAGE DISTRIBUTION (PERCENT)						
		NO DATA	0 MO	1-6 MO	7-12 MO	13-18 MO	19-24 MO	25+ MO
DARCOM	6	17	33				17	33
MERADCOM	19		47	16	21		5	11
CORADCOM	8		38	13	13		13	25
ERADCOM	44	2	25	20	11	11	9	20
AMMRC	6		50	17	17	17		
NARADCOM	5		40				20	40
MICOM	67	9	33	16	13	15	6	7
TARADCOM-TARCOM	34	3	35	12	24	12	3	12
TECOM	3		33		33	33		
AVRADCOM	61	10	43	8	10	10	8	11
ARRADCOM-ARRCOM (AMMO)	190	3	28	17	14	11	10	17
ARRADCOM-ARRCOM (WPNS)	78	4	41	9	15	10	5	15
	-----	-----	-----	-----	-----	-----	-----	-----
<b>TOTALS (DARCOM WIDE)</b>	<b>521</b>	<b>5</b>	<b>34</b>	<b>14</b>	<b>14</b>	<b>11</b>	<b>8</b>	<b>15</b>
<b>PREVIOUS PERIOD TOTALS</b>	<b>646</b>	<b>20</b>	<b>25</b>	<b>13</b>	<b>11</b>	<b>9</b>	<b>10</b>	<b>13</b>

Figure 1 - Slippage Profile

## MMT PROGRAM

PROJECTS ADDED 1st HALF, CY80



PROJECTS ADDED IN 1ST HALF, CY80

MERADCOM

E 80 3749

HYDRAULIC ROTARY ACTUATORS

ROTARY ACTUATOR MODELS HAVE NEVER BEEN PRODUCED ON A QUANTITY BASIS.

CORADCOM

F 80 3054

PRODUCTION METHODS FOR MULTI-LAYER FOLDED CIRCUITS

DENSE AND HIGHLY RELIABLE ELECTRONICS ARE REQUIRED FOR MILITARY SYSTEMS. CONVENTIONAL MULTI LAYER RIGID CIRCUIT HIGH DENSITY PACKAGING IS LIMITED BY SPECIAL INTERCONNECTIONS AND OTHER PROBLEMS.

DESCOM

G 80 0001

VOICE CONTROLLED PROGRAMMING OF COMPUTERS

PROGRAMMING COMPUTERS AND PROCESSING NC TAPES IS BEING DONE BY MANUAL INPUT WITH A KEYBOARD. THIS METHOD IS TIME CONSUMING AND SUBJECT TO ERRORS.

ERADCOM

H 80 5094

MMT-8 KBIT MNOS BORAM

PRESENT 2K BIT MEMORY CHIPS CANNOT STORE ADEQUATE DATA, AN 8K BIT CHIP HAS BEEN DEVELOPED IN R+D AND NEEDS TO BE PACKAGED AND PRODUCTION ENGINEERED

H 80 5095

MFG TECH ASSESSMENT OF ELECTRONICS

AREAS OF OPPORTUNITY FOR INVESTING MMT FUNDS TO IMPROVE PRODUCTIVITY AND REDUCE COST REQUIRE STUDY. COMPUTER AIDED SYSTEMS FOR DESIGN, MANUFACTURE AND TEST OF ELECTRONIC ARE PROPRIETARY AND UN-RELATABLE.

PROJECTS ADDED IN 1ST HALF, CY80  
(CONTINUED)

H 80 5110  
COMMON MODULE DETECTOR ARRAY

MERCURY-CADMIUM TELLURIDE DETECTOR ARRAYS ARE NOW HAND LAPPED AND POLISHED. CONTACT MASKING IS USED FOR PHOTOLITHOGRAPHY AND WET ETCHING FOR DELINEATION. ALSO, GOLD WIRING IS USED FOR LEADOUTS. THESE ARE LABOR INTENSIVE AND NON-UNIFORM.

H 80 5147  
HI RESISTIVITY POLYCRYSTALLIN SILICON

THERE IS A SHORTAGE OF HIGH PURITY TRICHLOROSILANE MATERIAL FOR GROWING INTO POLYSILICON RODS FOR VACUUM FLOAT ZONING INTO HIGH RESISTIVITY SINGLE CRYSTAL BOULES. HIGH PURITY, HIGH RESISTIVITY SILICON IS NEEDED FOR PHOTODETECTORS FOR MUNITIONS.

TARADCOM

T 80 5085  
TURBINE RECUPERATOR

CURRENT METHOD REQUIRES A LARGE NUMBER OF WELDS TO FABRICATE COMPONENT.

T 80 6057  
XM1 COMBAT VEHICLE

MATERIALS AND MANUFACTURING PROCESSES EMPLOYED IN THE MFG OF THE XM1 CAN BE IMPROVED BY INCORPORATING NEW TECHNOLOGIES TO THE CURRENT SYSTEM. THIS WILL ENABLE THE XM1 TO BE MANUFACTURED MORE ECONOMICALLY.

T 80 6059  
LARGE CAST ALUMINUM COMPONENTS

COMPLEX WELDED ARMOR AND STRUCTURAL SHAPES ARE COSTLY AND TIME CONSUMING. ITEMS SUCH AS TURRETS HAVE RESIDUAL STRESSES WHICH CREATE SUBSEQUENT MACHINING PROBLEMS.

AVRADCOM

I 80 7156  
ULTRASONIC ASSISTED MACHINING FOR SUPERALLOYS

MANY HELICOPTER PARTS ARE EXPENSIVE TO MACHINE.

PROJECTS ADDED IN 1ST HALF, CY80  
(CONTINUED)

1 80 7371

INTEGRATED BLADE INSPECTION SYSTEM (IBIS)

INSPECTION OF TURBINE ENGINE BLADES AND VANES NECESSITATES HIGH ACCURACY. THE EFFORT IS TIME CONSUMING AND SUSCEPTABLE TO ERROR.

1 80 7382

LOW COST COMPOSITE MAIN ROTOR BLADE FOR THE UH-60A

MANUFACTURING TECHNOLOGY FOR COATING GLASS AND GRAPHITE FILAMENT WOUND MAIN ROTOR BLADES HAS NOT BEEN ESTABLISHED FOR THE PRODUCTION ENVIRONMENT.

1 80 7391

BEARING DIAGNOSTIC AND RECLAMATION TECHNIQUES

CURRENT HELICOPTER OVERHAUL PROCEDURES REQUIRE BEARING REPLACEMENT RATHER THAN REPAIR/OVERHAUL. WITH PROPER DIAGNOSTIC AND RECLAMATION PROCEDURES, APPROX 35 PERCENT OF THE DEFECTIVE BEARINGS COULD BE RESTORED.

MICOM

R 80 1071

HYBRID INTEGRATED CAD AND MANUFACTURING (HICADAM)

HYBRID CIRCUIT DESIGN AND MANUFACTURE IS LABOR INTENSIVE. THE CAD DATA BASE HAS NOT BEEN EXTENDED TO MANUFACTURING PROCESS CONTROL.

R 80 1075

ELECTRONICS COMPUTER AIDED MANUFACTURING (ECAM)

ALTHOUGH INTEGRATED CIRCUITS, HYBRID CIRCUITS, PRINTED CIRCUITS AND CABLES ARE DESIGNED ON A COMPUTER, THERE IS LITTLE COMPUTERIZED CONTROL OF PROCESSES USED TO PRODUCE THESE ITEMS. A MASTER PLAN IS NEEDED TO DEFINE THE AREA AND REQUIREMENTS.

R 80 3169

OPTICAL INSP OF PRINTED CIRCUIT BOARDS

OPERATOR FATIGUE ALLOWS MANY BAD PCB'S TO PASS VISUAL INSPECTION.

PROJECTS ADDED IN 1ST HALF, CY80  
(CONTINUED)

R 80 3217

AUTOMATED PRODUCTION METHODS FOR TRAVELING WAVE TUBES

THE SAM-D TWT IS THE MOST EXPENSIVE COMPONENT IN THE GUIDANCE SYSTEM AND IS A SIGNIFICANT SYSTEM COST DRIVER. A FUNDAMENTAL CHANGE OF CONCEPT IN THE MANUFACTURING PROCESS IS REQUIRED.

R 80 3376

TESTING OF ELECTRO-OPTICAL COMPONENTS AND SUBSYSTEMS

MANUFACTURING TECHNOLOGY NECESSARY FOR PRODUCTION OF ELECTRO-OPTICAL SYSTEMS IS VERY LIMITED. LITTLE CORRELATION EXISTS BETWEEN COMPONENT SPECIFICATIONS AND THE PARAMETERS THAT IMPACT SYSTEM PERFORMANCE.

ARRADCOM-ARRCOM (AMMO)

8 80 0915

GROUP TECH REQUIREMENTS DEFINITION ELECTRONICS

CLASSIFICATION AND CODING SYSTEMS AND GROUP TECHNOLOGY HAVE BEEN DEVELOPED AND USED FOR BATCH MANUFACTURING OF MACHINED PARTS. POTENTIAL EXISTS FOR APPLYING THESE TECHNIQUES TO ELECTRONICS.

5 80 1335

MANUFACTURING TECHNIQUES FOR NEW PROTECTIVE MASK

FABRICATION OF ONE-PIECE PLASTIC MASKS WITH ADEQUATE OPTICAL CHARACTERISTICS IS DIFFICULT. VISION REDUCTION AND DISTORTION ARE CRITICAL.

5 80 1400

SPT FOR NORWEIGIAN MULTI PURP PROJECTILE

5 80 4357

NONDESTRUCTIVE TEST EQUIP F/LARGE CALIBER MUNITIONS F/M483A1

THERE IS NO NONDESTRUCT INSP METHOD WITH FLOW DETECTION RELIABILITY ESTAB F/M483. A MAGNETIC FLUX LEAKAGE DEVICE PURCHASED F/LOUISIANA AAP DEMONSTRATED FEAS BUT COST OF OPERATION MUST BE DETERMINED.

5 80 4411

SMALL CALIBER AMMUNITION PROCESS IMPROVEMENT PROGRAM

PROJECT 574 6200 IS SCHE 0-ED FOR TERMINATION ON 28 FEB 80. SEVERAL OF THE TASKS INCLUDING- EQUIP, FAILURE PREDICTION, REDESIGN OF LOAD + ASSEMBLE SUBMODULE BULLET + CASE FEEDERS AND EVAL. OF CARTRIDGE CASE CUPS HAVE NOT BEEN COMPLETED.

PROJECTS ADDED IN 1ST HALF, CY80  
(CONTINUED)

ARRADCOM-ARRCOM (WPNS)

6 80 7928  
ROBOTIZED BENCHING OPERATIONS

BENCHING OPERATIONS ON BREECHBLOCKS AND RINGS ARE UNSAFE  
AND TIME CONSUMING.

6 80 8036  
WEAPON AIMING SYSTEM FOR THE 6-DOF SIMULATOR

THE EXISTING PHYSICAL SIMULATION FACILITY FOR EVALUATION  
AND TESTING OF WEAPONS, STABILIZATION AND FIRE CONTROL  
SYSTEMS IS NOT CAPABLE OF FULLY TESTING THESE SYSTEMS  
BECAUSE THE PRESENT AIMING SYSTEM IS INADEQUATE FOR LARGE  
AMPLITUDE MOTIONS.

6 80 8051  
APPLICATION AND CONTROL OF MACHINE TOOLS (CAM)

CURRENT PROCEDURES FOR THE JUSTIFICATION, SELECTION,  
APPLICATION, AND MAINTENANCE OF MACHINE TOOLS ARE  
INADEQUATE TO AVOID PROCUREMENT OF INEFFICIENT, UNRELIABLE  
MACHINE TOOLS.

6 80 8062  
RAPID INTERNAL THREADING

PRODUCING INTERNAL METRIC THREADS IN BREECH RINGS IS A  
SERIOUS PRODUCTION PROBLEM BECAUSE OF BOTH THE TECHNIQUES  
AND TOOLING REQUIRED. CONVENTIONAL THREAD HOBBLING PRESENTS  
A PRODUCTION BOTTLENECK.

6 80 8209  
PILOT PRODUCTION OF GRADIENT INDEX OPTICS

GRADIENT OPTICS, WHERE IN THE INDEX OF THE GLASS IS  
SEQUENTIALLY VARIED TO OBTAIN DESIGNED OPTICAL  
CHARACTERISTICS IS FAR MORE DESIRABLE THAN CURRENT USED,  
I.E., FORMING A CURVE ON THE GLASS SURFACE.

TOTAL PROJECTS ADDED IN 1ST HALF, CY80      29

MMT PROGRAM

PROJECTS COMPLETED 1st HALF, CY80



PROJECTS COMPLETED IN 1ST HALF, CY80

DARCOM

4 74 5052

ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT

PROJECT COMPLETED. DISCONTINUED WORK ON MANUSCRIPTS 706-136 AND 706-137 SINCE OTHER PUBLISHED DOCUMENTS IN OPEN LITERATURE NOW FILL VOIDS. ONE EXAMPLE OF OTHER TYPES OF HANDBOOKS COMPLETED BY THIS PROJECT IS, HELICOPTER ENGINEERING SERIES.

MERADCOM

E 78 3532

MOLTEN SALT LI/CL BATTERY

MOLTEN SALT CELLS HAVE DEMONSTRATED OVER 800 CHARGE-DISCHARGE CYCLES. RECENTLY COMPILED MOLTEN SALT BATTERY COSTS ARE ABOUT EQUAL TO LEAD-ACID BATTERIES. ENERGY DENSITY IS ABOUT TWO TIMES GREATER THAN THE LEAD-ACID BATTERY.

E 78 3717

HIGH TEMPERATURE TURBINE NOZZLE FOR 10 KW POWER UNIT

TND PROCESSES HAVE BEEN SELECTED FOR CONTINUED WORK IN THE FY80 PROJECT.

CORADCOM

2 76 9776

FAB METHODS FOR LOW COST HYBRID SILICON PHOTODETECTOR MODULE

RCA QUEBEC ESTABLISHED AUTOMATED ASSEMBLY TECHNIQUES TO FABRICATE AND ALIGN FIBER OPTIC AND RANGEFINDER HYBRID PHOTODETECTOR MODULES. TESTING TECHNIQUES WERE IMPROVED AND HAND SOLDERING WAS ELIMINATED. DEMO AT RCA WAS ATTENDED BY SEVERAL NV FIRMS.

2 76 9781

THIN FILM TRANSISTOR ADDRESSED DISPLAY

SEE SUBTASKS A AND BE BELOW. WESTINGHOUSE HAS NOW WITHDRAWN FROM THIS TECHNOLOGY.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

2 76 9781 A

THIN FILM TRANSISTOR ADDRESSED DISPLAY

WESTINGHOUSE EXPENDED ALL FUNDS WITHOUT ACHIEVING PROJECT GOALS. EIGHT 10 INCH SQUARE TFT DISPLAY PANELS AND A TEST EXERCISER WERE DELIVERED. WORK INCLUDED THIN FILM EVAPORATION OF METALS, INSULATORS AND SEMICONDUCTORS. FINAL REPORT COMPLETED.

2 76 9781 B

THIN FILM TRANSISTOR ADDRESSED DISPLAY

FOLLOW-ON CONTRACT AT WESTINGHOUSE INCLUDED HIGH CONTRAST THIN FILM PHOSPHORUS & INTEGRATED SCANNING CIRCUITRY ON THE DISPLAY PANELS. NEW MASKS & METALLIZATION METHODS REDUCED PROCESS STEPS. ALL FUNDS EXHAUSTED & WORK STOPPED. FINAL REPORT COMPLETED.

ERADCOM

H 80 3031

10.6 UM CO2 TEA LASERS

FUNDS WERE REPROGRAMMED TO MUCH-NEEDED WORK ON MERCURY-CADMIUM-TELLURIDE FOR THE COMMON MODULE DETECTOR FOR USE IN THE XM-1 TANK SIGHT. THE FY80 EFFORT IS BEING REPROGRAMMED TO FY81 WHERE IT HAS HIGH PRIORITY. FY80 EFFORT WAS TERMINATED.

2 76 9746

THIN FILM AL OXIDE ION BARRIERS FOR 18MM MICROCHANNEL PLATES

ITT ELECTRO-OPTICS DEVELOPED PROCESSES FOR APPLYING A THIN FILM ALUMINUM OXIDE BARRIER ONTO MCPS. HOLE COUNT WAS REDUCED 10 TIMES AND THICKNESS WAS CUT IN HALF. THE NEW FILM DOUBLED TUBE LIFE. PRODUCTION RATE WAS RAISED FROM 1 A DAY TO 15 A DAY.

2 76 9767

DEPOSITION OF THICK FILM CIRCUITS FOR CRYSTAL OSCILLATORS

RAYTHEON'S CONTRACT WAS TERMINATED AT END OF SAMPLE PHASE DUE TO LOW YIELD AND HIGH COST. ACTIVE LASER TRIM, EUTECTIC BONDING, AND CHIP & WIRE BONDING WERE USED IN THICK FILM OSCILLATOR FABRICATION. CIRCUIT DENSITY ACHIEVED TWICE INDUSTRY STANDARD.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

2 77 9834

FABRICATION- SERIES TRANSDUCER ACOUSTIC DELAY LINES

WESTINGHOUSE BUILT SERIES CONNECTED ZINC OXIDE TRANSDUCERS WITH THIN-FILM DEPOSITED INDUCTOR TUNING ELEMENTS USING METAL MASK DELINATION. CONTRACT COMPLETED. MAN-HOURS PER DELAY LINE REDUCED FROM 10 TO 2.5. LOW ZNO YIELD WILL BE IMPROVED IN NEW PROJ.

H 78 9841

ZINC SELENIDE WINDOWS AND OPTICAL ELEMENTS

RAYTHEON USED CHEM VAPOR DEPOSITION TO FORM ZINC SELENIDE OPTICAL BLANKS OF QUALITY TO MEET FLIR REQUIREMENTS. AUTOMATIC WIRE FEED WAS USED TO SEND ZINC INTO A HYDROGEN SELENIDE ATMOSPHERE IN AN EVACUATED FURNACE. MATERIAL FORMS ON A CURVED MANDREL.

2 77 9842

THIRD GENERATION .9 MICRON PHOTOCATHODE

SEE SUBTASKS A AND B.

2 77 9842 A

VARIAN WORK

VARIAN SUCCESSFULLY COMPLETED ALL HARDWARE & SOFTWARE REQUIREMENTS FOR LIQUID EPITAXIAL GROWTH OF 0.9 MICRON PHOTOCATHODES. OPTIMUM MATERIAL COATING, BONDING & SEALING METHODS IMPROVED SENSITIVITY & LOWERED COST. FINAL REPORT DISTRIBUTED.

2 77 9842 B

ITT WORK

ITT RESOLVED PHOTOCATHODE CARBON CONTAMINATION PROBLEM IN PILOT RUN BY MODIFYING FINAL SURFACE CLEANING SEQUENCE PRIOR TO PHOTOEMISSIVE ACTIVATION. EPITAXIAL MULTI-GROWTH SYSTEM WAS DEMONSTRATED. SOFTWARE IS COMPLETED AND FINAL REPORT MAILED.

AMMRC

M 77 6350

MATERIALS TESTING TECHNOLOGY (MTT)

THE PROJECT HAS BEEN COMPLETED.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

M 77 6350 1842

NDT OF DOD FILTER IN BANNER ENGINEERING CORP PLANT

THIS TASK HAS BEEN COMPLETED. THE FINAL REPORT HAS ALSO BEEN COMPLETED AND IS AVAILABLE UPON REQUEST FROM AMMRC, PAUL ROLSTON AV 955-3555.

M 77 6350 2007

MEAS CASE DEPTH OF CARBURIZED GEARS BY ELECTROMAG TECH

THIS EFFORT HAS BEEN COMBINED WITH PROJECT M 80 6350-2631 TITLED "CRITICAL ELECTROMAGNETIC INSPECTION PROBLEMS WITHIN THE ARMY." FUTURE STATUS WILL BE INCLUDED IN THE PROJECT STATUS FOR M 80 6350-2631.

M 77 6350 2014

PORTABLE NEUTRON RADIOGRAPHY SYS - ENGR MODEL

THE EVALUATION OF THE SYSTEM WAS HALTED AWAITING FOR FUNDS TO EXTEND THE EVALUATION PERIOD. THE EVALUATION PERIOD WAS EXTENDED FROM ONE TO SIX WEEKS. THIS EXTENSION WAS DUE TO THE AIR FORCE INTEREST IN THE SYSTEM.

M 77 6350 2028

GUN TUBE CHAMBER PROFILE INSPECTION SYSTEM

THE CONTRACTOR REWORKED THE CHAMBER PROFILE GAGE AND SHIPPED IT IN APRIL. THE CAM WAS SLIGHTLY OVERSIZED. IT WAS DECIDED TO MODIFY IT IN HOUSE TO AVOID FURTHER DELAYS, THE GAGE PERFORMS AS INTENDED.

M 77 6350 2029

MINI COMPUTER MAPPING OF FATIGUE CRACKS IN THREADS

THE CONTRACTOR PROPOSALS WERE EVALUATED. THE CONTRACT WAS AWARDED 1 FEB 80. THE SOFTWARE FOR THE DR-11K AND COMPUTER INTERFACE WAS COMPLETED.

M 77 6350 2054

ESTAB OF ULTRASONIC STANDARDS F/PROCUR OF ARMOR PLATE

THE WORK HAS BEEN COMPLETED. THE TECHNICAL REPORT IS BEING REVIEWED AND WILL BE SUBMITTED TO AMMRC 9 30 1980. THE RESULTS OF THIS PROJECT WILL BE USED TO MODIFY MIL-A-12560D.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

M 77 6350 2215

RADAR METHOD FOR SENSING AND OUTPUT TESTING OF DETONATOR

THE RADAR MODEL HAS BEEN COMPLETED. THE TESTING OF THE DETONATORS WILL BE INITIATED ONCE THE RADAR SIGNAL GENERATOR HAS BEEN REPAIRED. TWO COMPUTER PROGRAM WERE COMPLETED TO ANALYZE THE M55 FIRINGS.

M 77 6350 2421

INSPECT FOR THREADS ON M223 FUZE

THIS EFFORT WAS TERMINATED. THE M223 FUZE DESIGN CHANGE GREATLY REDUCED THE CHANCE THAT IT COULD ARM IN PLANT IF THREADS WERE NOT PRESENT.

M 77 6350 2431

COMPUTERIZED COLOR MATCHING SYSTEM

THE QUANTITATIVE COMPARISON CONTRACT WAS COMPLETED. THE THREE INSTRUMENTS TESTED WERE SUFFICIENTLY STABLE AND REPEATABLE FOR THE INTENDED PURPOSE. ALL INSTRUMENTS REQUIRE MINOR OPTICAL CHANGES.

M 77 6350 2450

ADHESION OF CHROMIUM + COATINGS WITH GUN STEEL

ULTRACENTRIFUGAL ADHESION TESTER CONTRACT WAS AWARDED IN DEC 1979. THE REDESIGN OF THE CIRCUITRY WAS PROMPTED DUE TO THE NONAVAILABILITY OF REPLACEMENT PARTS. THE ASSEMBLY OF TESTER IS UNDERWAY AND IS EXPECTED TO BE DELIVERED IN JUNE 1980.

TARADCOM

T 79 4389

PDN OF FOLDABLE PLASTIC TOPS FOR SOFT TOP TRUCK CABS-PH 1

SOLICITATION WAS MADE AND BIDS RECEIVED REVIEWED. PROGRAM TERMINATED AND REMAINING FUNDS WERE UTILIZED TO SUPPLEMENT MMT PROJECT 4795067-PLASTIC BATTERY BOX - PHASE I.

4 76 4392

JOINING DISSIMILAR METALS-PHASE 2-

DISSIMILAR METAL JOINTS HAVE BEEN FABRICATED AND BALLISTIC TEST PLATES PREPARED. THE BALLISTIC TESTING WILL BE CONDUCTED UNDER A FOLLOW ON PROJECT SCHEDULED FOR FY82.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

T 79 5006

PRODUCTION OF LIGHTWEIGHT STEEL CAST TRACK SHOES

TEN CASTINGS HAVE BEEN POURED. WORK HAS BEEN TERMINATED AND THE FUNDS HAVE BEEN REPROGRAMMED.

T 79 5045

SPALL SUPPRESSIVE ARMOR FOR COMBAT VEHICLES-PHASE 1

A CONTRACT WAS AWARDED TO THE FMC CORP TO DESIGN AND FABRICATE A SPALL LINER INSTALLATION KIT FOR THE M113A1.

T 79 5080

HIGH STRENGTH NEAR NET SHAPE ALUMINUM TRANSMISSION CASES

PROGRAM HAS BEEN TERMINATED DUE TO LACK OF RESPONSE TO THE RFP.

T 77 5083

UPSCALING OF POWDERED METALLURGY PROCESSES

PROJECT IS COMPLETE. PROJECT DEMONSTRATED THAT TEST COUPONS COULD BE MADE BY ISOTHERMAL FORGING.

T 78 5083

UPSCALING OF POWDERED METALLURGY PROCESSES

PHASE II EFFORT WAS A FAILURE WITH THE 22 INCH GEAR. THIS PHASE HAS NOW BEEN REDIRECTED TOWARD SMALLER GEARS.

T 79 5088

HIGH POWER ELECTRON BEAM WELDING IN AIR PHASE 1

PROGRAM IS BEING TERMINATED BECAUSE OF LACK OF RESPONSE TO THE PROCUREMENT REQUEST.

T 77 5097

INTEGRALLY CAST LOW COST COMPRESSOR

PHASE I HAS BEEN SUCCESSFULLY COMPLETED.

TECOM

O 77 5071

IMPROVEMENT OF PRODUCTION TEST METHODOLOGY

FOR THE PROJECT STATUS SEE SUBTASKS BELOW.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

0 77 5071 03

BACKSPALLING CHARACTERISTICS

THE CAL .30AP, M2 PROJECTILE TEST RESULTS WILL BE USED TO ESTABLISH REQ. THE CAL .50, M2 PROJECTILES SHATTERED THE TEST PLATES. THESE TEST PLATES WERE REPLACED WITH PLATES HAVING 45/55 THICKNESS RATIO. THE EXIT HOLES IN THESE PLATES ARE TOO LARGE.

0 77 5071 07

SMALL CALIBER WEAPON COOK-OFF TESTING

THREE SMALL CALIBER WEAPONS TEST PROGRAMS HAVE BEEN COMPLETED. A SUITABLE CLINIC FACILITY HAS BECOME AVAILABLE TO COMPLETE THE TESTING. THIS TASK IS SCHEDULED TO BE COMPLETE AND FINAL REPORT WRITTEN BY THE END OF FY80.

0 77 5071 09

RISK IN ACCEPTING MATERIAL NOT CONFORMING TO EMI REQUIREMENT

THIS TASK HAS BEEN COMPLETED AND THE FINAL REPORT HAS BEEN PREPARED.

0 77 5071 11

COOLING CAPACITY OF AIR CONDITIONERS

WORK ON THE STANDARDIZATION OF THE PSYCHOMETRIC CELL HAS BEEN COMPLETED. THE FINAL REPORT IS SCHEDULED FOR COMPLETION IN JULY 1980

0 77 5071 18

GUN AIR DEFENSE SYSTEM TEST AND EVALUATION

ANALYSIS OF THE DATA AND PREPARATION OF THE FINAL REPORT IS UNDERWAY AND IS SCHEDULED TO BE COMPLETE IN OCTOBER 1980.

0 77 5071 22

PRODUCTION TEST RANGE

SECOND PHASE OF THE INDUSTRIAL ENGINEERING CONTRACT FOR RANGE SIMULATION DEVELOPMENT HAS BEEN COMPLETED.

0 77 5071 28

IMPACT SENSITIVITY OF FUZES

THE RESULTS OF THIS TASK HAVE PRODUCED THREE PROMISING TEST METHODS. A FINAL REPORT FOR THIS PHASE HAS BEEN PREPARED AND IS BEING PROCESSED FOR APPROVAL AND PUBLICATION

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

0 77 5071 29

AUTOMATIC DATA COLLECTION SYSTEMS FOR AIR CONDITIONERS

THE RECALIBRATION OF ELECTRONIC ANALOG INST SOLVED THE DISCREPANCIES THIS INST AND THE MANOMETERS AND THERMOMETERS PRESENTLY USED. A FINAL REPORT IS SCHEDULED FOR PUBLICATION IN JULY 1980.

0 77 5071 30

RADIATION DOSIMETRY

THIS TASK HAS BEEN COMPLETED. THE FINAL REPORT HAS BEEN SUBMITTED TO TECOM FOR APPROVAL.

AVRADCOM

1 76 7042

MICROWAVE CURE OF COMPOSITE ROTOR BLADE SPARS

PROCESSING TECHNIQUES AND CURE CYCLES IN BOTH THE RF AND MICROWAVE RANGE WERE DEVELOPED FOR A CURRENT ARMY HELICOPTER RESIN SYSTEM. TOOLING MATERIALS, PRESSURIZATION TECHNIQUES, AND TEMPERATURE MONITORING TECHNIQUES WERE ALSO DEVELOPED.

1 77 7052

FEAS OF ULTRASONIC ASSISTED FORMATION OF TITANIUM NOSE CAP

THE PROJECT WAS CANCELLED DUE TO THE LOW PROBABILITY OF PROJECT SUCCESS AND IMPLEMENTATION.

1 80 7052

ULTRASONICALLY-ASSISTED COLD FORMING OF TITANIUM NOSE CAPS

THE REMAINING PHASE OF THIS EFFORT WAS CANCELLED DUE TO THE LOW PROBABILITY OF COMPLETE SUCCESS.

1 75 7070

CAST COMPRESSOR COMPONENTS

THE PROJECT DEMONSTRATED THAT A CAST T62T-40 TITANIUM IMPELLER WOULD SUCCESSFULLY COMPLETE THE ENDURANCE QUALIFICATION TEST. COST SAVINGS OF 50 PERCENT COULD BE REALIZED OVER THE FORGED VERSION WHEN PRODUCED IN LARGE QUANTITIES.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

1 78 7086

ABRADABLE SEALS FOR COMPRESSOR BLADE TIP APPLICATIONS

AN IMPROVED CHEM-BRAZE BONDING SYSTEM FOR ATTACHING SINTERED ABRADABLE SEALS SUCH AS FELTMETAL, TO STEEL, TITANIUM, AND NICKEL-BASE COMPRESSOR BLADE TIP-SHROUDS WAS DEVELOPED. THE IMPROVED SYS USD GLYCERIN AS AN INHIBITOR WHICH PROLONGED WORK LIFE.

1 77 7104

T700 TURBINE ENGINE NOZZLE MANUFACTURING PROCESS

DRAFT TECH REPORT HAS BEEN SUBMITTED. NECESSARY CHANGES HAVE BEEN REPORTED TO THE CONTRACTOR.

1 79 7113

COMPOSITE FUSELAGE MANUFACTURING TECHNOLOGY

PROJECT WORK, WHICH IS THE FIRST PHASE OF A THREE EFFORT, WAS COMPLETED. WORK CONSISTED OF A PRELIMINARY MANUFACTURING DESIGN REFINEMENT. THE REAR FUSELAGE CONCEPT WILL CONSIST OF A KEVLAR SKIN AND GRAPHITE BEAMS AND STRINGERS.

1 76 7114

IMPROVED MFG TECH FOR INFRARED SUPPRESSION ON AIRCRAFT

THIS PROJECT HAS BEEN COMPLETED. THE PROCESS PARAMETERS HAVE BEEN INVESTIGATED AND OPTIMIZED. THE FINAL TECHNICAL REPORT WILL BE COMPLETED SOON.

1 77 7119

NON-DESTRUCTIVE EVALUATION TECH FOR COMPOSITE STRUCTURES

NUMEROUS S-GLASS/EPOXY FILAMENT WOUND BOX BEAMS. BOTH WITH AND WITHOUT INTENTIONAL FLAWS, WERE FABRICATED AND EXAMINED BY ULTRASONIC C-SCAN AND X-RADIOGRAPHY. DAMAGE PROPAGATION IN THESE SPECIMENS WAS MONITORED BY IR THERMOGRAPHY AND ACOUSTIC EMISN.

1 78 7119

NON-DESTRUCTIVE EVALUATION TECH FOR COMPOSITE STRUCTURES

COMPUTER SEARCH OF CHEMICAL ABSTRACT, ENGINEERING INDEX, AND NTIS DATA BASE WAS UPDATED MONTHLY. VISITS WERE MADE TO HELICOPTER MANUFACTURERS TO DETERMINE WHAT INSPECTION METHODS WERE BEING USED FOR COMPOSITES.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

1 77 7144

T700 ENGINE NOZZLE IN-PROCESS INSPECTION

FOR STATUS SEE PROJECT NO 1 78 7144. THE FUNDING FOR 1 77-78 7104 AND 1 77-78 7144 IS SUMMARIZED IN PROJECT NO 1 78 7144. THESE PROJECTS WERE COMBINED UNDER ONE CONTRACT WITH GE.

1 76 7156

ULTRASONICALLY ASSISTED MACHINING FOR SUPERALLOYS.

ALL STUDIES HAVE BEEN COMPLETED. THE AUTOMATIC FREQUENCY CONTROL DEVELOPED AND TESTED AND THE FINAL REPORT IS BEING PREPARED.

1 78 7199

LASER HARDENING OF GEARS, BEARINGS AND SEALS

THIS PROJECT WAS COMPLETED WHICH INCLUDES THE FIRST PORTION OF PHASE I OF A TWO PHASE EFFORT.

1 78 7240

ESR 4340 MACHINING METHODS FOR HELICOPTER APPLICATIONS

ALL WORK HAS BEEN COMPLETED AND A FINAL HAS BEEN SUBMITTED TO AMMRC FOR REVIEW.

1 78 7241

HOT ISOSTATIC PRESSING OF TITANIUM CASTINGS

PHASE I OF THE EFFORT IS COMPLETE.

1 79 7243

MACHINING OPERATIONS ON KEVLAR LAMINATED CONSTRUCTIONS

RELEASE OF FUNDS TO PERFORM THE PROPOSED EFFORT IN FY80 NEVER MATERIALIZED. ON 14 AUG 79, \$90K WAS WITHDRAWN THEREBY NEGATING THE EFFORT. WORK WILL BE PERFORMED IN FY80.

1 77 7258

THIN WALL MANTECH FOR RPV SENSOR DOMES

THIS WAS AN INDUSTRY STUDY PROJECT FOR OPTICAL COATINGS FOR USE ON REMOTELY PILOTED VEHICLE DOMES. A VARIETY OF PLASTIC MATERIALS AND PROCESSES WERE INVESTIGATED AND WILL BE DOCUMENTED IN THE FINAL REPORT.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

1 77 7281

SURVEY OF COMPOSITE MANTECH F/ARMY AIRCRAFT STRUCTURES

WORK WAS SUCCESSFULLY COMPLETED. RESULTS OF THE SURVEY OF ARMY HELICOPTER MANUFACTURERS TO DETERMINE STATE-OF-THE-ART COMPOSITE MANUFACTURING TECHNIQUES WERE INCLUDED IN THE DOD/NASA STRUCTURAL COMPOSITE FABRICATION GUIDE.

1 78 7285

CAST TITANIUM COMPRESSOR IMPELLERS

DDA HAS PROCURED IMPELLERS IN THREE DIFFERENT MATERIALS. DIMENSIONAL, METALOGRAPHIC AND MECHANICAL PROPERTY TESTS HAVE BEEN COMPLETED. SOLAR HAS CONDUCTED WELD REPAIR STUDIES.

1 78 7286

SUPERALLOY POWDER PRODUCTION FOR TURBINE COMPONENTS

PROJECT IS COMPLETE. THE ATOMIZATION PROCESS IS RESPONSIBLE FOR A MAJOR PORTION OF THE CONTAMINATES FOUND

1 78 7287

PRODUCTION METHODS FOR MULTI-ELEMENT MODULES FOR ANTENNAS

PROJECT WAS CANCELLED PRIOR TO CONTRACT AWARD AND FUNDS WERE REPROGRAMMED. GOAL WAS TO ESTABLISH PRODUCTION PROCESSES FOR HYBRID LOGIC DRIVER MODULES USED IN PHASED ARRAY ANTENNAS. HYBRID INTEGRATION TECHNIQUES AND AUTOMATED TEST WERE PLANNED.

1 79 7287

PRODUCTION METHODS FOR MULTI-ELEMENT MODULES FOR ANTENNAS

FOLLOW-ON TO 1 78 7287. PROJECT WAS CANCELLED PRIOR TO CONTRACT AWARD AND FUNDS WERE REPROGRAMMED. PHASE II GOAL WAS TO ESTABLISH A PILOT LINE FOR HYBRID INTEGRATED PHASE SHIFTER MODULES USING TECHNIQUES DEVELOPED IN PHASE I.

1 79 7339

FILAMENT WOUND COMPOSITE FLEXBEAM TAIL ROTOR

A SEPARATE PRESS (SEPARATE FROM THE MAIN ROTOR BLADE) HAS BEEN PURCHASED TO ELIMINATE THE NEED TO INTERCHANGE MOLDS THEREBY REDUCING THE POSSIBILITY OF DAMAGE, AND TO INCREASE MANUFACTURING EFFICIENCY.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

1 79 7340  
COMPOSITE MAIN ROTOR BLADE

THE PHASE I EFFORT (FY79\$) WAS COMPLETED IN DEC 79. IT COVERED MFG REFINEMENT, TOOL DESIGN, TOOLING FABRICATION, AND THE FABRICATION OF 5 BLADES. TESTING OF THESE BLADES WILL BE ACCOMPLISHED IN PHASE II (FY80\$).

1 75 8017  
EROSION RESISTANT LEADING EDGE FOR HELICOP ROTOR BLADES

IT WAS FOUND THAT BORIDE COATING ON TITANIUM WAS EXCELLENT AT LOW ANGLE IMPACT AGAINST SAND EROSION. THE BORIDE COATING IS NOT EFFECTIVE AGAINST SAND WHEN THE GRAIN SIZE EXCEEDS 100 MILLIMICRON.

1 76 8045  
FIBER-REINFORCE PLASTIC HELICOPTER TAIL ROTOR ASSEMBLY

ALL PROJECT WORK HAS BEEN COMPLETED. A FINAL TECHNICAL REPORT USAAVRADCOM TR-79-45 TITLED "MMT FIBER REINFORCED PLASTIC HELICOPTER TAIL ROTOR ASSEMBLY" HAS BEEN PUBLISHED. RESULTS SHOW THAT THE PULTRUSION PROCESS IS Viable FOR SOLID ROTOR SPARS.

1 75 8120  
IMPRVD HC PTR SKIN MATERIAL BY CNTRL LD SOLIDIFICATION + TMT  
  
THE FINAL REPORT WAS REVIEWED AND APPROVED BY ARRADCOM AND AVRADCOM. IT IS BEING ISSUED AS AVRADCOM REPORT NUMBER TR80-F-6.

MICOM

R 78 3075  
INFRARED TESTING OF PC BOARDS AND MICROCIRCUITS

AN INDUSTRY DEMONSTRATION WAS HELD IN JAN. THE FEASIBILITY OF IR TESTING WAS DEMONSTRATED. A FINAL REPORT FOR THIS EFFORT WILL DOCUMENT THE PROJECT FINDINGS.

R 77 3112  
MFG MULTILAYER RIGID-FLEX HARNESS

MCDONNELL DOUGLAS ESTABLISHED MANUFACTURING PROCESSES FOR PRODUCTION OF RIGID-FLEX PRINTED WIRING HARNESSSES AT REDUCED COST. ADHESIVE BONDING WAS UTILIZED. DISCRETE CABLE INTERCONNECTIONS WERE ELIMINATED. A DEMO WAS HELD ON 16 AND 17 JUNE 1980.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

R 78 3126

PROCESSING OF LASER OPTICAL CERAMICS

AMMRC GREW NEODIMIUM DOPED YAG USING THE HEAT EXCHANGER METHOD BUT INGOTS DID NOT YIELD LASER QUALITY CRYSTALS. GROWTH CYCLE WAS CHANGED TO SOLVE THE PROBLEM. FREEZING OCCURS AT LOWER TEMPERATURES THAN EXPECTED. SCALE UP FROM 7 CM WAS NOT TRIED.

R 78 3150

DEVEL METHOD FOR UTILIZING UV CURED CONFORMAL COATINGS

DURING THIS PERIOD THE CANDIDATE MATERIALS REDUCED TO ONE. THIS ONE CANDIDATE PASSED ALL TESTS. ALL CONTRACTURAL OBJECTIVES MET. LESS THAN 25 SECONDS CURE TIME. THUS LOWERING COSTS. ALL WORK COMPLETE, FINAL REPORT APPROVED, PENDING PUBLICATION.

R 79 3160

CLEANLINESS + PROCESS CRITERIA FOR CIRCUIT BOARDS

MARTIN MARIETTA IS ESTABLISHING A PROCESS TO IDENTIFY, QUANTIFY, AND REMOVE CONTAMINANTS REMAINING ON PCB'S AFTER NORMAL CLEANING. CONTRACT OPTION WAS MODIFIED TO ADD WORK AND EXTEND THE TIME. A LIQUID PHASE CHROMATOGRAPH IS BEING USED.

R 78 3242

DIGITAL FAULT ISOLATION OF PRINTED CIRCUIT BOARD

A TEST ENGINEER'S CHECKLIST FOR THE TESTABILITY OF PRINTED CIRCUIT BOARD (PCB) HAS BEEN PREPARED. A FAULT ISOLATION SYSTEM SURVEY AND EVALUATION WAS COMPLETED FOR PCB'S. AN INTERIM REPORT WAS PUBLISHED. EFFORT CONTINUED UNDER PROJECT R79 3242.

R 78 3254

SEMI-FLEXIBLE THIN FILM SEMICONDUCTORS

MICROELECTRONICS CORP ESTABLISHED A CONTINUOUS PROCESS VACUUM DEPOSITION SYSTEM FOR FABRICATING THIN FILM CIRCUITS ON SEMI-FLEXIBLE SUBSTRATES. PHASE I WORK IS ESSENTIALLY COMPLETE. GOAL WAS TO ESTABLISH A COMPUTER CONTROLLED DEPOSITION SYSTEM.

R 78 3396

INJECTION MOLDING OF ONE PIECE NOZZLES

PROJECT WORK WAS COMPLETED. CANDIDATE MATERIALS, MOLDING PROCEDURES, AND TOOL AND DIE DESIGN WERE DETERMINED. MOLDED PROTOTYPE COMPONENTS WERE TESTED, AND RESULTED IN THE SELECTION OF MATERIALS FOR THE SECOND YEAR OF THE EFFORT.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

R 77 3452

LOW COST QUANTITY PRODUCTION TECHNIQUES FOR LASER SEEKERS

MARTIN PRODUCED A LOW COST LASER SEEKER BY INTEGRATING THE COPPERHEAD ELECTRONICS PACKAGE WITH THE ALTERNATE HELLCAT SEEKER HEAD. PROCESSES USED WERE DIAMOND TURNING, ADHESIVE BONDING, & REPLICATION. TO SAVE \$57M OVER FIRST THREE YEARS.

ARRADCOM-ARRCOM (AMMO)

S 76 3062

PELLET THERMAL POWER SUPPLY TECHNOLOGY

BINDER CONTENT OF DEB POWDER IS CRITICAL. ALSO RANGE POWDER UNIFORMITY MAY BE CRITICAL FOR THERMAL BATTERIES WITH SEVERE PERFORMANCE REQUIREMENTS. FINAL REPORT FOR THIS PROJECT COMPLETED IN FIRST

S 77 3947

THICK FILM HYBRID CIRCUITS FOR XM587E2/XM724 FUZES

HONEYWELL BUILT 2000 HYBRID OSCILLATOR CIRCUITS USING TAPE AUTOMATED BONDING. RCA BUILT 800' HYBRID INTERFACE AND FIRING CIRCUITS USING AUTOMATIC WIRE BONDING. PART OF RCA'S WORK WAS PERFORMED ON FOLLOW-ON PROJECT S 78 3947.

S 78 3947

THICK FILM HYBRID CIRCUITS FOR XM587E2/XM724 FUZES

SEE SUBTASKS A AND B.

S 78 3947 A

THICK FILM HYBRID CIRCUITS-HONEYWELL

HONEYWELL BUILT 2000 HYBRID OSCILLATOR CIRCUITS. PROCESSES INCLUDE TAPE AUTOMATED BONDING & ACTIVE LASER TRIM. IMPROVED TECHNIQUES WILL RESULT IN \$20 PER UNIT COST REDUCTION PER XM587E2 FUZE. ALL WORK COMPLETED AND FINAL REPORT DISTRIBUTED.

S 78 3947 B

THICK FILM HYBRID CIRCUITS-RCA

RCA HAD METALLIC INK AND WIRE BONDING PROBLEMS WITH HYBRID INTERFACE & FIRING CIRCUIT. 800 HYBRIDS DELIVERED WERE BELOW GOAL OF 2000. PROCESSES INCLUDE ACTIVE LASER TRIM & LEAD FRAME ASSY. ALL WORK COMPLETED AND FINAL REPORT DISTRIBUTED.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

5 74 4009

AUTO OF EQUIP FOR A/P OF SMALL SHAPED CHARGE ROCKETS

INITIAL PROTOTYPE MODULES WERE DESIGNED AND FABRICATED. SEE 5764009 FOR CONTINUING EFFORTS ON SYSTEM.

5 76 4009

AUTO OF EQUIP FOR A/P OF SMALL SHAPED CHARGE ROCKETS

AUTOMATED LINE OF PACKOUT MODULES AND CONTROL SYSTEM WAS DEBUGGED AND TESTED WITH THE LAW ROCKET IN GROUPS OF 45. EQUIPMENT IS NOW STORED AT LONE START AAP PENDING FUTURE PRODUCTION ORDERS.

5 75 4012

FINAL ROLL MILL/PAD-MAKEUP MACHINE FOR MORTAR INCREMENTS

PROJECT PHYSICALLY TERMINATED 29 JAN 80 DURING FINAL INERT DEBUGGING RUN. MALFUNCTION OCCURRED IN ELECTRONIC CONTROLS FOR ROLL SPEEDS. LIVE PROVE-OUT AND GUN FIRINGS DELETED. DISPOSITION FOR IMPLEMENTATION IS UNDER REVIEW AND REPORT IS IN PROCESS.

5 79 4051

IMPROVED INSTR CONTROL FOR ACID PLANTS

A FINAL TECHNICAL REPORT DATED 5 JAN 80 WAS ISSUED SPECIFYING MFRS, EQUIPMENT MODELS, CAUSES OF DEFICIENCY AND RECOMMENDATIONS FOR CORRECTIVE ACTION. COST ESTIMATES ARE GIVEN FOR ELIMINATING DEFICIENCIES.

5 74 4054

PROC IMPROVED ENG F/MOD+AUTO OF ARTY PROP CHARGE MFR

THE 3-D BAG MAKING MACHINE WAS DELIVERED TO ARRADCOM. DISPOSITION PENDING R&D PRODUCTION OF XM211 BAGS. CLOTH INSPECTION EQUIPMENT SHIPPED TO INDIANA AAP. IMPLEMENTATION DEPENDS ON PLANNED PROJECT 581 4359.

5 77 4105

AUTO INCREMENT L/A OF PROP CHARGE W/CENTRAL CORE IGNITERS

PROJECT WAS COMPLETED WITH LOADER AND ASSEMBLY MACHINE INSTALLED AT CRANE AAA. PACKOUT MODULE PARTIALLY COMPLETED. REMAINDER OF 80, FABRICATION AND AS-BUILT DRAWINGS FROM VENDOR DEFERRED TO IPF PROJECT 5 79 0012 WITH CRANE.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

5 7T 4114

POLLUTION ABATEMENT METHODS FOR P+E

PROJECT WAS COMPLETED THIS REPORT PERIOD.

5 75 4114

METHODS TO MINIMIZE ENVIRONMENTAL CONTAMINATION.

PROJECT WAS COMPLETED THIS REPORT PERIOD.

5 77 4114

METHODS TO MINIMIZE ENVIRONMENTAL CONTAMINATION

PROJECT WAS COMPLETED THIS REPORT PERIOD.

5 77 4202

PROTO EQ F/CONT AUTO PROD OF SOLVENT- TYPE MULTI-BASE PROP

DEVELOPMENT OF THE PROTOTYPE PROCESS WAS SUCCESSFULLY CONCLUDED. THE PROCESS WAS PROVEN BY PRODUCING A 3000 LB LOT OF M30A1 PROPELLANT AND TESTED BALLISTICALLY. A SECOND TEST OF THE PROCESS WAS DONE BY PRODUCING LIMITED QUANTITIES OF M26E1 PROPELLANT

5 74 4215

AUTO THE CONTINUOUS TNT PROD FACILITY PROCESS CONTROLS

EVALUATIONS WERE CONDUCTED ON AUTOMATIC, ANALYTICAL INSTRUMENTATION WHICH WOULD PROVIDE CONTINUOUS INFORMATION ON ACIDITY, DENSITY, PH, FLOW, AND OTHER RELATED PARAMETERS NECESSARY FOR TNT PROCESS CONTROL A FINAL TECHNICAL REPORT WAS WRITTEN

5 78 4228

AUTOMATED BAG LOADING/CHARGE ASSEMBLY + PACKOUT-155MM/8IN

CHARGE ASSEMBLY AND PACKOUT LINE WERE DEBUGGED AND MODIFIED. DEMO TESTS WERE SATISFACTORY. EQUIPMENT AND TECH DATA WAS FURNISHED TO INDIANA AAP FOR IMPLEMENTATION UNDER PIF PROJECT 5 82 0045.

5 78 4237

CONTINUOUS TNT PROCESS ENGINEERING

INITIAL MECHANICAL TESTING AND WATER TESTING WERE ACCOMPLISHED FOR THE INSTALLED TNT PILOT PLANT AND ITS REMOTE CONTROL SYSTEM. SOME DEFECTS OF INSTRUMENTATION AND INSTALLATION WERE UNCOVERED. FUNDS WERE WITHDRAWN FOR ANOTHER PROJECT, ENDING THIS ONE

5 77 4252

IMPROVE PRESENT PROCESSES FOR THE MANUFACTURE OF RDX + HMX

THIS EFFORT DEVELOPED NEW PROCESSES FOR PRODUCING COMP C-4, A-4 AND A-5. METHODS TO IMPROVE THE YIELD OF RDX AND HMX WERE DEVELOPED. PILOT EVALUATION AND PLANT PROVE-OUT ARE REQUIRED BEFORE THESE PROCESSES CAN BE IMPLEMENTED INTO PRODUCTION

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

5 76 4263

AUTO PILOT LINE FOR CONTROLLED COOL/PROCESSING HE LOAD PROJ

THE PILOT PLANT WAS FINISHED AND ALL MAJOR PROCESS SYSTEMS WERE INSTALLED. A COMPLETE INSTRUMENTATION, CONTROL AND MONITORING SYSTEM WAS DESIGNED, PROCURED AND DELIVERED.

5 77 4263

AUTO PILOT LINE FOR CONTROLLED COOL/PROCESSING HE LOAD PROJ

THE METAL PARTS PREHEATER SYSTEM AND CONTROLLED COOLING SYSTEM WERE ACCEPTANCE TESTED. THE PLC SYSTEM AND ALL PROJECTILE WORK STATIONS WERE DEMONSTRATED.

5 78 4263

AUTO PILOT LINE FOR CONTROLLED COOL/PROCESSING HE LOAD PROJ

EXPANDED MELT-POUR LINE WAS SUCCESSFULLY DEMONSTRATED IN AUTOMATIC AND REMOTE MODES OF OPERATION. EXPLOSIVE LOADING OPERATIONS ARE PLANNED IN FOLLOW-ON PROJECT 5 79 4263.

5 78 4285

TNT EQUIVALENCY TESTING FOR SAFETY ENGINEERING

TNT EQUIVALENCY RATINGS FOR BULK NITROCELLULOSE, COMP C-4, LX-14 BULK/PRESSED BILLETS, COMP A3 AND BALL POWDER WERE DETERMINED AND SUBMITTED IN TECHNICAL REPORTS.

5 78 4289

HAZARD CLASSIFICATION OF PROPELLANTS AND EXPLOSIVES

A HAZARD CLASSIFICATION PROCEDURE WAS DEVELOPED TO CHARACTERIZE POTENTIAL HAZARDS IMPOSED BY IN-PROCESS CHEMICAL MIXTURES. TWO TECHNICAL REPORTS WILL BE PUBLISHED ON HAZARDS TEST DATA FOR EXPLOSIVES, PROPELLANTS AND PYROTECHNIC COMPOSITIONS.

5 77 4291

BLAST EFFECTS IN THE MUNITIONS PLANT ENVIRONMENT

COMMERCIALLY AVAILABLE STEEL BLDGS WERE FOUND TO BE UNSUITABLE FOR USE AS PROCESS BLDGS AT AMMO PLANTS. A STRENGTHENED STEEL BLDG WAS DESIGNED, CONSTRUCTED AND TESTED AT DUGWAY PROVING GND. A FINAL REPORT HAS BEEN ISSUED.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

5 78 4310  
DMSO RECRYSTALLIZATION OF HMX/RDX

INITIAL DEBUGGING OF DMSO PILOT LINE COMPLETED. START-UP AND INDIVIDUAL UNIT PROVE-OUT TESTS CONDUCTED ON MAJOR EQUIPMENT. MODIFICATIONS WERE MADE AS REQUIRED.

5 77 4343  
IMPROVED NITROCELLULOSE PROCESS CONTROL

EVALUATION OF PROCESS CONTROL PARAMETERS AND PROPERTIES OF CELLULOSE WAS FINALIZED. COMPLETION POINT OF NITRATION VARIES WITH CELLULOSE TYPE, GRADE OF NC MANUFACTURED AND ACID USED.

5 78 4343  
IMPROVED NITROCELLULOSE PROCESS CONTROL

FINAL TECH REPORT UNDER PREPARATION WITH FY77 EFFORT. AFFECTS OF PULP VARIABLES ON NC CHARACTERISTICS WILL BE COVERED.

5 7T 4444  
BODY FOR M42/M46 GRENADE

THE PROJECT HAS RESULTED IN THE SELECTION OF TWO POTENTIAL PROCESSES FOR CONTINUED WORK.

5 78 4472  
DEV EQUIP/ PROC FOR AUTO/MECH FAB OF CENTER CORE PROP BAG

FEASIBILITY STUDY WITH THREE APPROACHES WAS COMPLETED. CONCLUSIONS WERE MECANIZATION FOR THE WEB, BODY AND LINER ASSEMBLY AND IMPROVED FIXTURES FOR REMAINING FABRICATION OPERATIONS. DEVELOPMENT OF PROTOTYPE SYSTEM ESTIMATED AT \$652K WITH ROI OF 54%.

5 77 6596  
BALL PROPELLANT PILOT PLANT STUDIES

FY77 FUNDING FOR THIS 4-YR PROJECT WAS USED ALMOST EXCLUSIVELY TO DESIGN, PROCURE AND INSTALL THE CONTINUOUS WET LINE EQUIPMENT. THE SMALL REMAINDER OF FUNDING CAME FROM FY76 AND FY78. AN INERT PROVE-OUT OF THIS LINE IS SCHEDULED WITH FY78 FUNDS.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

5 76 6634

MFG DU ALLOYS FOR LARGE CALIBER ARMOR DEFEATING PROJECTILE

PROJECT COMPLETE. IT DEVELOPED A COST EFFECTIVE PROCESS FOR RECYCLING TUNGSTEN ALLOY MACHINING CHIPS INTO TUNGSTEN ALLOY POWDER AND A WAY TO MAKE ACCEPTABLE TUNGSTEN ALLOY CORES.

5 77 6634

MFG DU ALLOYS FOR LARGE CALIBER ARMOR DEFEATING PROJECTILE

PROJECT COMPLETE. A PRODUCTION PROCESS WAS DEMONSTRATED WHICH ASSISTED THE SELECTION OF EQUIPMENT FOR STABALLOY CORE PRODUCTION FACILITIES.

5 78 6681

PROCESS PARAMETERS FOR PRODUCTION FORMING OF PROJECTILES -

PROJECT COMPLETE. ROTARY FORGING AND SQUEEZE CASTING OF MUNITION SHAPES IS TECHNICALLY FEASIBLE. ECONOMIC ANALYSIS SHOWS ROTARY FORGING TO BE Viable AT HIGH PRODUCTION LEVELS, BUT SQUEEZE CASTING IS NOT A Viable ALTERNATIVE AT PRESENT.

5 77 6683

PRODUCTION OF TUNGSTEN BASE ALLOY PENETRATORS FOR AP MUNIT

THE TECHNICAL REPORT IS IN DRAFT FORM AND IS BEING REVIEWED FOR SECURITY CLASSIFICATION. THE TUNGSTEN PROCESSING AND MECHANICAL PROPERTY DATA HAVE BEEN PREPARED AND ARE BEING USED AS THE BASE LINE FOR CURRENT EFFORTS.

5 78 6725

AUTOMATED INERTIA BANDING MACHINE FOR ARTILLERY MUNITIONS

PROJECT RESULTS SHOW NO CORRELATION BETWEEN MEASURABLE PROCESS PARAMETERS AND THE QUALITY OF WELDS. THUS THE PROJECT GOAL OF AUTOMATED PROCESS CONTROL IS UNOBTAINABLE AT THIS TIME.

ARRADCOM-ARRCOM (WPNS)

6 77 7588

ROTARY FORGE INTEGRATED PRODUCTION TECHNOLOGY

THE ROTARY FORGE PROCESS INCLUDING PREHEATING AND HEAT TREATING HAS BEEN OPTIMIZED. NEW VENDORS OR NEW MATERIALS WILL REQUIRE REOPTIMIZING. ALL RESULTS ARE IMPLEMENTED.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

6 78 7649

COMPUTERIZED POWDER METALLURGY FORGING DESIGN-CAM

PROJECT IS COMPLETE. THE PROGRAM HAS ESTABLISHED A CAD/CAM COMPUTER PROGRAM THAT WILL DESIGN POWDER METAL FORGING PREFORMS. IT HAS BEEN DEMONSTRATED BY SUCCESSFULLY DESIGNING AND FORGING THE CARTRIDGE GUIDE RAMP FOR THE M85 MACHINE GUN.

6 77 7652

COOLANT CHIP EJECTOR, MULTI-OPERATION TOOLING

VARIOUS MAKES OF NEW CARBIDE INDEXABLE-INSERT OIL-HOLE DRILLS WERE TESTED, EVALUATED AND APPLIED IN PRODUCTION DRILLING. THE NEW SANDVIK T-MAX U TREPAN TOOL WAS FOUND TO BE CAPABLE OF OVER REMOVING OVER 2-1/2 CUBIC INCHES/HP/MINUTE.

6 77 7655

APPLICATION - THERMOARC SPRAY WEAR COATINGS

THIS PROJECT WAS COMPLETED DURING THIS REPORTING PERIOD. THE PROPERTIES OF WEAR RESISTANCE AND BOND STRENGTH AS FUNCTIONS OF THE VARIOUS THERMAL-SPRAY PROCESSES AND COATING MATERIALS WERE DETERMINED FOR WEAPON SYSTEMS COMPONENTS.

6 78 7655

APPLICATION - THERMOARC SPRAY WEAR COATINGS

THIS PROJECT WAS COMPLETED DURING THIS REPORTING PERIOD. THE RESULTS OF THIS PROGRAM INDICATE THAT MANY WEAR-RESISTANT COATINGS ARE SUITABLE FOR USE ON WEAPON SYSTEM COMPONENTS THROUGH JUDICIOUS SELECTION OF THERMAL-SPRAY PROCESSES AND COATING MATL.

6 77 7716

PROTOTYPE PROD LINE FOR PRESSURE PHOSPHATE COATINGS

THIS PROJECT WAS COMPLETED DURING THIS REPORTING PERIOD. EQUIPMENT WAS DESIGNED, FABRICATED, AND PROCEDURES DEVELOPED FOR OPERATING A HIGH TEMPERATURE, MANGANESE PHOSPHATE COATING PROCESS FOR STEEL. THE PROCESS IS RECOMMENDED FOR PRODUCTION TRIALS.

6 78 7716

PROTOTYPE PROD LINE FOR PRESSURE PHOSPHATE COATINGS

THIS PROJECT WAS COMPLETED DURING THIS REPORTING PERIOD. EQUIPMENT WAS DESIGNED, FABRICATED, AND PROCEDURES DEVELOPED FOR OPERATING A HIGH TEMPERATURE, MANGANESE PHOSPHATE COATING PROCESS FOR STEEL. THE PROCESS IS RECOMMENDED FOR PRODUCTION TRIALS.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

6 77 7726

APPLICATION OF COLD AND WARM ROTARY FORGING

ALL WORK PLANNED FOR THIS PHASE IS COMPLETE EXCEPT FORGING TRIALS WHICH HAVE BEEN POSTPONED DUE TO PRODUCTION REQUIREMENTS. TRIALS ARE PLANNED TO OCCUR DURING THE CONDUCT OF THE FY78 AND FY79 PHASES OF THIS THREE YEAR EFFORT.

6 77 7741

IMPR INST/INSPECT ANGLE + LINEARITY OF F C INSTS

DECLOG DESIGNED THE ALIGNMENT CALIBRATION SYSTEM USING SPECIALLY CONFIGURED UNIAXIAL CRYSTALS AND POLARIMETRY TECHNIQUE TO DETERMINE SIGHT ANGLE AND LINEARITY. IT CONSISTS OF OFF-THE-SHELF COMPONENTS. EFFORT IS COMPLETED.

6 78 7741

IMPR INST/INSPECT ANGLE + LINEARITY OF F C INSTS

ARRADCOM BUILT AND TESTED A BREADBOARD OF THE BIREFRINGENT ANGULAR ALIGNMENT SENSOR. COMPARISON OF TEST RESULTS WITH THEORETICAL RESULTS INDICATES THAT MISALIGNMENT OF ONE DEGREE CAUSES ONLY A SMALL DEGRADATION OF SENSITIVITY AND LINEAR RANGE.

6 78 7743

APPLICATION OF ANTI-FOG CONDUCTIVE FILMS

ARRADCOM USED RF SPUTTERING AND ELECTRON BEAM EVAPORATION TO DEPOSIT INDIUM TIN OXIDE CONDUCTIVE FILMS ONTO A PERISCOPE WINDOW. THIS WAS FOLLOWED BY A MAGNESIUM FLUORIDE COATING. 95% TRANSMISSION WAS ACHIEVED AND DURABILITY REQUIREMENTS WERE MET.

6 77 7746

IMPROVE DURABILITY HIGH EFFICIENCY REFLECT FILMS

ARRADCOM LAB USED RF SPUTTERING TO COAT GLASS WITH SILVER TO FORM A MIRROR. SILVER HAS GOOD ADHERANCE EQUAL TO THE MIL-SPEC FOR ALUMINUM. RESEARCH TO DEVELOP PROTECTIVE FILM FOR SILVER MIRRORS WAS NOT DONE ON THIS PROJECT AND WAS SLIPPED TO FY81.

6 77 7814

SYNTHETIC QUENCHANT FOR HEAT TREATING WEAPON COMPONENTS

PROJECT WORK HAS BEEN COMPLETED. UCON SOLUTIONS ARE BEING USED AT THE HEAT TREATMENT SHOP. A SHOP MANUAL WILL BE DISTRIBUTED TO MANUFACTURING PERSONNEL.

PROJECTS COMPLETED IN 1ST HALF, CY80  
(CONTINUED)

6 78 7814

SYNTHETIC QUENCHANT FOR HEAT TREATING WEAPON COMPONENTS

PROJECT WORK HAS BEEN COMPLETED. UCON SOLUTIONS ARE BEING USED AT THE HEAT TREATMENT SHOP. A SHOP MANUAL WILL BE DISTRIBUTED TO MANUFACTURING PERSONNEL.

6 78 7825

ELIMINATION OF FACILITATING HONING OPERATIONS

BURNISHING AS AN APPROACH TO ELIMINATING HONING IS FEASIBLE. A 65 POINT IMPROVEMENT IN RMS WAS OBTAINED. HOWEVER, BORED FINISH OF 150-200RMS IS NECESSARY IF BURNISHING IS TO IMPROVE THE FINISH SO THAT IS ACCEPTABLE FOR THE SWAGING PROCESS.

6 78 7933

CENTRAL COOLANT SYSTEMS

THIS IS A FINAL PROGRESS REPORT. FINAL TECH REPORT RECOMMENDS INSTALLATION OF A CENTRAL COOLANT SYSTEM IN LIEU OF INDIVIDUAL MACHINE SUMP SYSTEM. IMPLEMENTATION OF RECOMMENDED SYSTEM IS DEPENDENT ON AVAILABILITY OF FUNDS FOR WATERVLIET ARSENAL.

6 79 8017

POLLUTION ABATEMENT PROGRAM

ELECTROPLATING OF CADMIUM AND COPPER USING NON-CYANIDE BASED BATHS HAS BEEN SCALED UP TO THE CAPABILITY OF PRODUCTION PROCESSES. PLATED SPECIMENS DISPLAY EXCELLENT COATING INTEGRITY AND THE COATINGS MET REQUIREMENTS OF APPLICABLE MIL AND FED SPECS.

6 78 8043

IMPROVED MACHINING PROCEDURES FOR DOVETAILS

MILLING AND BROACHING WERE CONSIDERED AS POTENTIAL SOLUTIONS. MILLING WAS SELECTED AND A MACHINE SPECIFICATION PREPARED. ACTION TO PURCHASE THE MACHINE HAS BEEN INITIATED. A FINAL TECHNICAL REPORT HAS BEEN PREPARED.

6 78 8045

IMPROVED TUBE STRAIGHTENING

THIS PROJECT IS COMPLETED. IMPLEMENTATION WAS AFFECTED BY ATTACHING THE DIGITAL READOUT SYSTEM TO THE HYDRAULIC PRESS.

TOTAL PROJECTS COMPLETED IN 1ST HALF, CY80      111

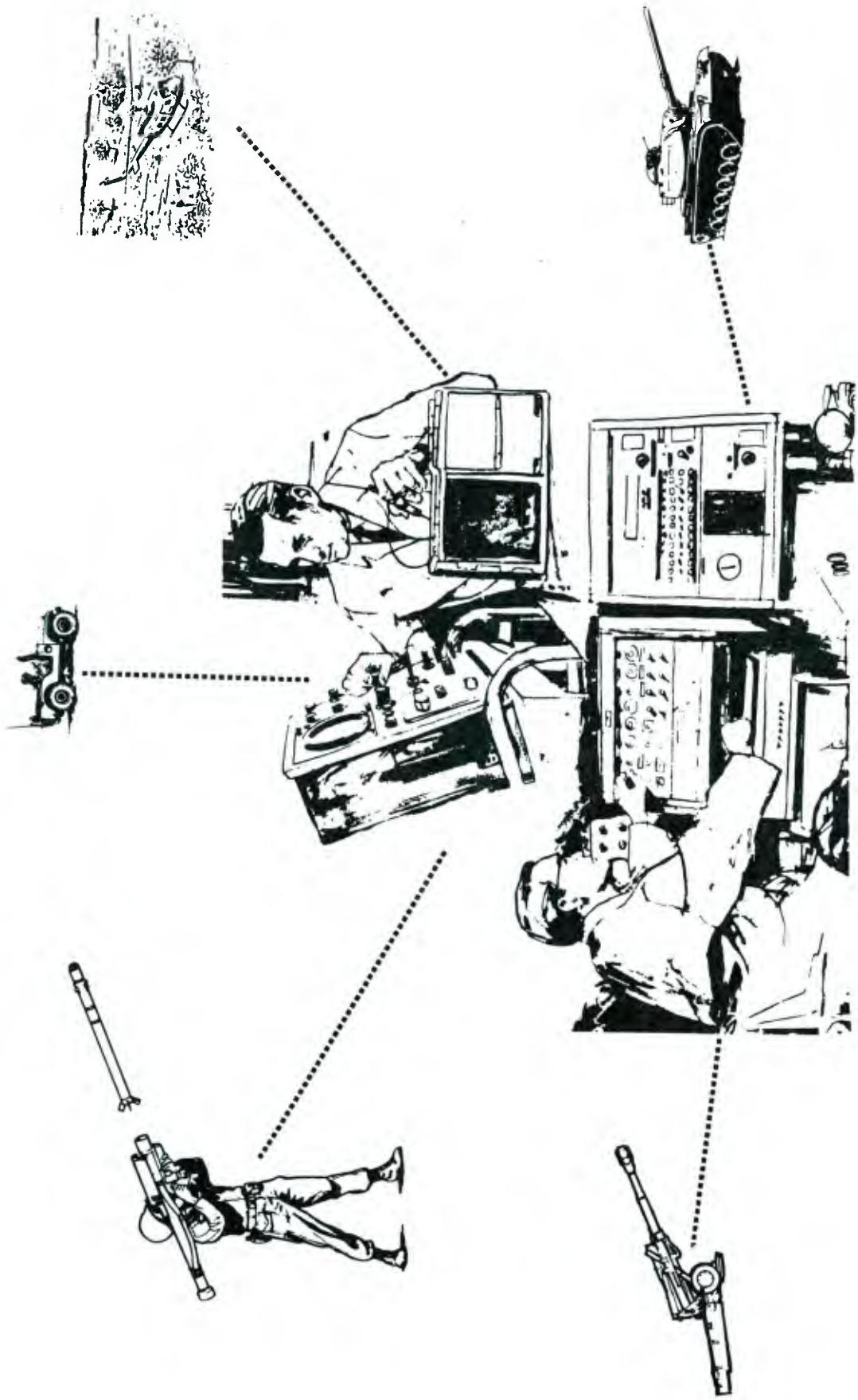
MMT PROGRAM  
SUMMARY PROJECT STATUS REPORT



## MANUFACTURING METHODS AND TECHNOLOGY PROGRAM

### SUMMARY PROJECT STATUS REPORT

The Summary Project Status Report for each Subordinate Major Command (SUBMACOM) is preceded by the tabulated SUBMACOM MMT project funding status. The accuracy of funding amounts is based on the individual project status reports. The status as reported here is the IBEA condensation of information contained in the report or other comments as deemed useful. If a status report was not provided, a pertinent comment was made so that the project would be printed.



**TEST AND EVALUATION COMMAND  
(TECOM)**

## TEST AND EVALUATION COMMAND

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING	
			ALLOCATED ( \$ )	EXPENDED ( \$ )	REMAINING ( \$ )	EXPENDED ( \$ )
78	1	735,000	159,500	159,500 (100%)	575,500	496,100 ( 86%)
79	1	881,000	57,000	57,000 (100%)	824,000	548,700 ( 66%)
80	1	822,000	103,900	53,700 ( 51%)	718,100	167,300 ( 23%)
81	0	0	0	0 ( 0%)	0	0 ( 0%)
82	0	0	0	0 ( 0%)	0	0 ( 0%)
TOTAL	3	2,438,000	320,400	270,200 ( 84%)	2,117,600	1,212,100 ( 57%)
AUTHORIZED FUNDING		CONTRACT ALLOCATED	13%	INHOUSE REMAINING	86%	

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
 SUM MARY PR0JECT STATUS REPORT  
 1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED		CONTRACT		EXPENDED		PRESENT PROJECTED	
		VALUES (\$000)	MATERIAL (\$000)	LABOR AND COMPLETE DATE	ORIGINAL PROJECTED COMPLETE DATE	LABOR VALUES (\$000)	MATERIAL (\$000)	LABOR VALUES (\$000)	MATERIAL (\$000)
0 78 5071	IMPROVEMENT OF PRODUCTION TEST METHODOLOGY SEE SUBTASKS BELOW FOR PROJECT STATUS.			735.0	159.5	496.1	DEC 79	DEC 80	
0 78 5071 10	TEST OPERATIONS PROCEDURES DURING THIS PERIOD THREE TOP'S WERE COMPLETED. TWENTY THREE TOP'S WERE PUBLISHED.							DEC 80	
0 78 5071 31	GEDAAC AND CONVENTIONAL INSTRUMENTATION DATA CORRELATION THE INVESTIGATION OF ADDITIONAL MIL-STD-705 AND MTD DATA REQUIREMENTS IS CONTINUING.							DEC 80	
0 78 5071 32	ELECTROSTATIC GENERATION AND PRECIPITATION TECHNICAL DATA REQUIREMENTS FOR ELECTROSTATIC CHARGE MEASUREMENT HAVE BEEN IDENTIFIED AND A MAN-SIZED FARADAY CAGE IS BEING CONSTRUCTED.							DEC 80	
0 78 5071 34	GUN AIR DEFENSE SYSTEM LASER TECHNIQUES STATUS HAS NOT CHANGED FROM LAST REPORT. BASICALLY THE TASK HAS BEEN SUSPENDED DUE TO LACK OF MANPOWER.							DEC 80	
0 78 5071 35	PROJECTILE EDDY CURRENT INSPECTION WORK IS CONTINUING TO DEVELOP A HANDLING MECHANISM AND TO VALIDATE OPERATING PROCEDURES. THE FINAL REPORT IS SCHEDULED TO BE COMPLETE THIS FISCAL YEAR.							SEP 80	
0 78 5071 36	IN-BORE RADIOGRAPHY TECHNIQUE APPLICATION CONFLICTS WITH HIGH-PRIORITY TEST PROJECTS HAS DELAYED THE COMPLETION OF THIS TASK. THE FINAL REPORT IS SCHEDULED FOR COMPLETION IN SEP 1980.							SEP 80	
0 78 5071 37	MILITARY VEHICLE ROLL OVER TESTS THE FIRST PHASE OF THIS TASK HAS BEEN COMPLETED. THE 2ND PHASE WILL UNDERTAKE TO DEVELOP A PRACTICAL FIELD TO EVALUATE ROLL OVER PROPENSITY. THE PROCUREMENT REQUEST THE 2ND PHASE HAS BEEN COMPLETED.							DEC 80	
0 78 5071 39	TRANSDUCER VELOCITY MEASUREMENT THE STATUS OF THIS TASK HAS NOT CHANGED SINCE LAST REPORTING PERIOD.							DEC 80	
0 78 5071 40	DIRECT FIRE WEAPON ADVANCED MUZZLE BORE SIGHT A SIGHT HAS BEEN FABRICATED WHICH INCORPORATES A 20-POWER ELBOW SCOPE. LAB TEST WERE CONDUCTED TO DETERMINE THE ERROR RELATIVE TO THE MECHANICAL DESIGN OF THE SCOPE AND THE HUMAN AND ENVIRONMENTAL FACTORS INVOLVED IN PRECISE ACCURATE SIGHTINGS.							DEC 80	

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
 SUMMARY PROJECT STATUS REPORT  
 1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES- ENT DATE
0 78 5071 42	IMPROVED CRUSHER GAGES STATUS OF THIS TASK HAS NOT CHANGED SINCE LAST REPORTING PERIOD.					DEC 80
0 78 5071 43	TEST AUTOMATION DEVELOPMENT WORK IS CONTINUING TO DEVELOP AUTOMATED TESTING FOR AVIONICS TESTING, ANTENNA PATTERN TESTING AND DIGITAL COMMUNICATIONS TESTING. ALSO, AN AUTOMATION PLAN HAS BEEN DEVELOPED FOR USAEPG MAINSITE.					DEC 80
0 78 5071 45	AEROSOL BIOLOGICAL PARTICLE SIZE MEAS. STANDARDIZATION THE WORK PERFORMED THIS PERIOD WAS LIMITED AS NO AEROSOL CHAMBER OR LABORATORY FACILITIES WERE AVAILABLE. FURTHER DELAYS ARE ANTICIPATED THRU JAN 1981. SOME EQUIPMENT WAS PURCHASED DURING THIS REPORTING PERIOD.					DEC 80
0 78 5071 46	FERMENTATION METHODOLOGY FERMENTATION EQUIPMENT FOR AUTOMATIC MONITORING AND RECORDING OF VARIOUS PARAMETERS GOVERNING BACTERIAL GROWTH HAVE BEEN REPAIRED AND CONNECTED. THREE EMPLOYEES HAVE BEEN TRAINED IN OPER AND METHODOLOGY ASPECTS OF FERMENTATION.					DEC 80
0 78 5071 47	AVIRULENT VEE VIRUS STRAIN STANDARDIZATION DUE TO A LACK OF FACILITIES, ONLY RESEARCH WORK WAS DONE DURING THIS REPORTING PERIOD. THE RETURN TO BAKER LAB WILL ALLOW THIS PROGRAM TO RESUME WITHOUT FURTHER DELAY.					DEC 80
0 78 5071 48	TANK MAIN WEAPON FIRING INHIBITOR A NEW SYSTEM IS BEING BROADBOARDED AND THE EVALUATION IS SCHEDULED FOR SEPTEMBER 1980. THE FINAL REPORT IS SCHEDULED TO BE COMPLETED BY DECEMBER 1980.					DEC 80
0 78 5071 49	IMPROVED TRANSPORTABILITY/CONTAINER TEST CAPABILITY NO WORK WAS ACCOMPLISHED AS THE TASK HAS BEEN TEMPORARILY SUSPENDED DUE TO THE TRANSFER OF THE PRINCIPAL INVESTIGATOR. IT IS EXPECTED THAT THE WORK WILL RESUME IN OCT 1980.					DEC 80
0 79 5071	TECOM TEST METHODOLOGY ENGINEERING MEASURES SEE SUBTASKS BELOW FOR PROJECT STATUS.			881.0	548.7	SEP 80
0 79 5071 01	ACCEPTANCE TEST PROCEDURES 12 ATPS PREPARED BY OTHER AGENCIES WERE REVIEWED FOR TECHNICAL ACCURACY AND TWO NEW ATPS WERE PREPARED BY APG AND PUBLISHED. THOSE PUBLISHED COVERED ACCEPTANCE TESTS FOR 105MM PROJECTILES AND A QUALITY CONTROL PLAN FOR STEEL PLATE.					DEC 81
						SEP 80

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED	CONTRACT~	EXPENDED	ORIGINAL	PRESENT
		VALUES (\$000)	LABOR AND MATERIAL (\$000)	LABOR AND MATERIAL (\$000)	PROJECTED COMPLETE DATE	COMPLETE DATE
0 79 5071 10	TEST OPERATION PROCEDURES ONE TOP WAS PUBLISHED. TWELVE TOP ARE AWAITING PUBLICATION APPROVAL.				SEP 80	DEC 81
0 79 5071 50	TOXIC GAS MEASUREMENTS DURING WEAPON FIRINGS TRIAL FIRINGS FROM THE TANK ARE AWAITING ASSIGNMENT OF GUN CREWS AND INST. SUPPORT WHICH HAS BEEN DELAYED UNTIL SEP 1980. THIS DELAY IS DUE TO HIGHER PRIORITY TEST PROGRAMS.				SEP 80	DEC 81
0 79 5071 51	SAFETY EVALUATION OF AMMUNITION AN INVESTIGATION IS CURRENTLY UNDERWAY TO ESTABLISH EQUIVALENCE BETWEEN THE LOOSE CARGO BOUNCE TEST AND TACTICAL TRANSPORT ENVIRONMENT OF UNPACKED MATERIEL. ALSO WORK IS UNDERWAY TO DETERMINE ADEQUACY OF UNIFORM CONDITIONS RELATING TO DAMAGE.				SEP 80	DEC 81
0 79 5071 52	SHOCK AND BLAST EFFECTS FROM STABALLOY PENETRATION THIS TASK IS BEING TERMINATED AS IT HAS BEEN SUPERSEDED BY AN ARMY MATERIAL ACQUISITION PROGRAM.				SEP 80	JUN 80
0 79 5071 53	CERTIFICATION OF LOOSE CARGO BOUNCE TEST A CONTRACT WAS AWARDED JAN 4, 1980. A SAMPLE HARDWARE MONITOR WAS FABRICATED AND TESTED. THE DATA FROM THE TEST IS IN THE PROCESS OF BEING ANALYZED.				SEP 80	DEC 81
0 79 5071 54	ON-LINE SEMI CONDUCTOR TESTING IN NUCLEAR ENVIRONMENT VERY LITTLE EFFORT HAS BEEN EXPENDED ON THIS TASK DUE TO A HEAVY PROJECT WORKLOAD.				SEP 80	DEC 81
0 79 5071 55	FAST BURST REACTOR THE CORE MODIFICATION HAS BEEN COMPLETED. THE RESULTS OF THIS MODIFICATION HAS BEEN FORWARDED TO DARCOM FOR APPROVAL FOR USE OF THE CORE IN THIS CONFIGURATION.				SEP 80	DEC 81
0 79 5071 56	LIDAR FEASIBILITY TEST THE DATA GENERATED IN THE PREVIOUSLY CONDUCTED FIELD TEST OF A LIDAR TYPE SYSTEM HAS BEEN EVALUATED. BASED ON THESE RESULTS, A CONTRACT HAS BEEN AWARDED FOR A LIDAR SYSTEM MODIFIED TO MEET SMOKE MUNITION EVALUATION REQUIREMENTS.				SEP 80	DEC 81
0 80 5071 11	PRODUCTION TEST METHODOLOGY SEE SUBTASK BELOW FOR PROJECT STATUS.	822.0	103.9	167.3	DEC 82	DEC 82
0 80 5071 01	ACCEPTANCE TEST PROCEDURES TWENTY-ONE ATP WERE WRITTEN AND PUBLISHED. FOURTEEN ATP HAVE BEEN WRITTEN AND ARE BEING REVIEWED. SEVEN ATP HAD CHANGES ISSUED. THIRTY SEVEN ATP WERE REVIEWED WITH COMMENTS.				DEC 82	DEC 82

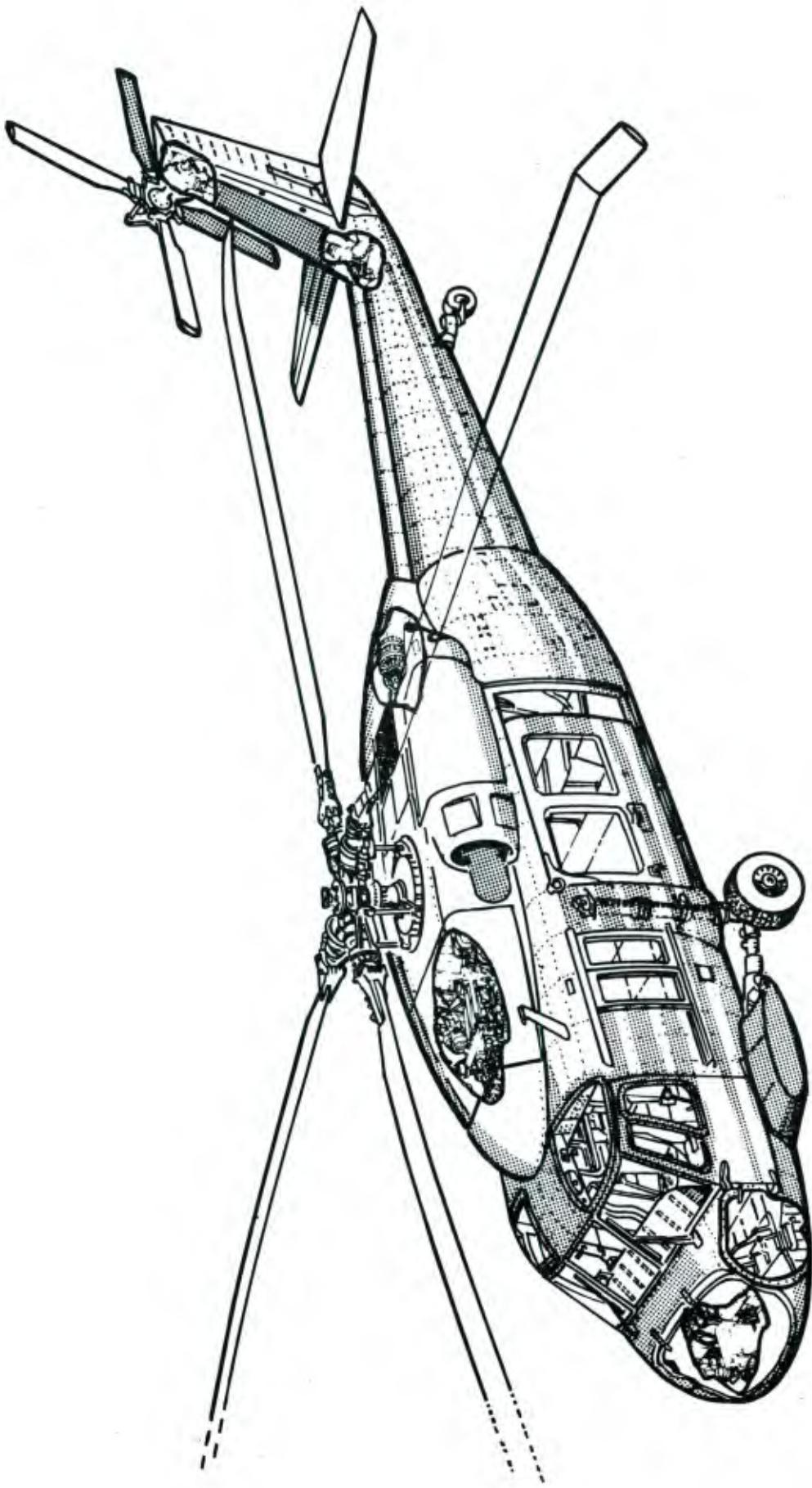
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
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PROJ NO.      TITLE + STATUS

PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
0 80 5071 10	TEST OPERATIONS PROCEDURES TWO TOP WERE PUBLISHED. SEVEN TOP ARE BEING STAFFED. NINE TOP ARE IN THE PROCESS OF BEING WRITTEN. SPECIAL PROCEDURES FROM TECOM WERE REVISED AND COMMENTS FORWARDED.				DEC 82	DEC 82
0 80 5071 57	GENERAL PURPOSE BIT SLICE MICRO-COMPUTER A REVIEW OF THE CURRENT BIT-SLICE DESIGN REVEALED SEVERAL PROBLEMS. A STUDY WAS MADE OF THE CURRENT TECHNOLOGY TO DETERMINE THE BEST SOLUTION TO THE CURRENT BIT-SLICE SHORTCOMINGS. THE MICRO 2910 BIT-SLICE CHIP DEVICE WAS CHOSEN AS A REPLACEMENT.				DEC 82	DEC 82
0 80 5071 58	AIR VELOCITY INFLUENCES ON FUNGAL SPORE GERMINATION THE INDIVIDUAL TEST FUNGI GERMINATION BASELINE DATA HAS BEEN DETERMINED USING A POTATO DEXTROSE AGAR RATHER THAN SILICON GREASE. STAINING AND COUNTING TECHNIQUES FOR DETERMINING THE PERCENT GERMINATION OF FUNGAL SPORES HAS BEEN DEVELOPED.				DEC 82	DEC 82
0 80 5071 59	SOLAR POWERED INSTRUMENTATION VAN THE VAN DESIGN WAS COMPLETED. TEST WERE RUN ON THE THERMOELECTRIC HEATING/COOLING UNITS. A SEARCH WAS CONDUCTED FOR CONTROL FUNCTION COMPONENTS. DESIGN OF THE HEATING AND COOLING SYSTEM WAS COMPLETED. THE VAN IS IN THE PROCESS OF BEING MODIFIED.				DEC 82	DEC 82
0 80 5071 60	RECEIVER OPERATING CHARACTERISTICS MEASUREMENTS THE TECHNICAL LITERATURE REVIEW HAS BEEN INITIATED. SEVERAL SOURCES OF APPLICABLE THEORETICAL INVESTIGATIONS HAVE BEEN DETERMINED AND ARE BEING REVIEWED. ALGORITHM ARE BEING EVALUATED. WEAPON SYS TEST INSTR TEST REQ ARE BEING GENERATED.				DEC 82	DEC 82
0 80 5071 61	SMOKE OBSCURATION TEST PROCEDURES LACK OF PERSONNEL HAS DELAYED THIS INVESTIGATION. IT IS ANTICIPATED THAT THE INVESTIGATION SHOULD START IN OCTOBER 1980.				DEC 82	DEC 82
0 80 5071 62	DISPERSION DATA FOR AUTOMATIC WEAPONS AT LONG RANGE THREE SINGLE BARRELED AUTOMATIC WEAPONS HAVE BEEN SELECTED FOR PHASE I. FIRING OF THE THREE SELECTED WEAPONS IS PENDING PLANNED.				DEC 82	DEC 82
0 80 5071 63	BALLISTIC TEST OF HIGH HARDNESS STEEL ARMOR TESTING HAS BEEN CONDUCTED ON ARMCO STEEL PLATES. PLATES FROM US STEEL AND JONES AND LAUGHLIN WILL BE TESTED.				DEC 82	DEC 82
0 80 5071 64	IMPROVED ENGINE WEAR ANALYSIS AVE PARTICLE SIZE FOR WEAR PRODUCTS IN ENGINE OILS, HYD FLUIDS, AND FINAL DRIVE OILS HAVE BEEN DETERMINED. WORK ON MAKING & ANALYZING KNOWN SYNTHETIC SUSPENSIONS OF WEAR PRODUCTS WILL BE PURSUED.				DEC 82	DEC 82

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0 80 5071 65	PRODUCTION/STANDARDIZATION OF COXIELLA BURNETII SLURRIES RICKETTSIAL STAINS AND EMBRYONATED EGGS HAVE BEEN PROCURED TO COMMENCE PRODUCTION AS SOON AS THE RENOVATED LABORATORY FACILITY COMPLETES THE OPERATION READINESS INSPECTION.				DEC 82	DEC 82
0 80 5071 66	CERTIFICATION OF THE DEMILITARIZATION PROTECTIVE ENSEMBLE THE TEST CELLS HAVE BEEN PROCURED ALONG WITH ALL REQUIRED TEST MATERIALS. TESTING IS UNDERWAY ON AGENT HD.				DEC 82	DEC 82
0 80 5071 67	INTEROPERABILITY TEST METHODOLOGY HARDWARE SPEC FOR THE SOFTWARE DRIVER HAVE BEEN DEVELOPED. REVIEWED AND COMMENTED ON NUMEROUS INTEROPERABILITY RELATED DOCUMENTS AND CORRESPONDENCE.				DEC 82	DEC 82



AVIATION R&D COMMAND  
(AVRADCOM)

AVIATION R & D COMMAND  
CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT ALLOCATED ( \$ )	INHOUSE FUNDING		INHOUSE EXPENDED ( \$ )
				EXPENDED ( \$ )	REMAINING ( \$ )	
75	1	125,000	31,000	13,000	( 41%)	94,000 ( 100%)
76	2	306,000	173,600	139,600	( 80%)	132,400 ( 96%)
77	0	0	0	0	( 0%)	0 ( 0%)
77	3	471,600	266,500	161,300	( 60%)	205,100 ( 99%)
78	10	2,603,000	1,400,700	930,700	( 66%)	1,202,300 ( 46%)
79	20	5,270,200	3,790,000	1,494,700	( 39%)	1,480,200 ( 63%)
80	25	8,468,500	5,825,500	1,803,000	( 30%)	2,643,000 ( 14%)
81	0	0	0	0	( 0%)	0 ( 0%)
82	0	0	0	0	( 0%)	0 ( 0%)
TOTAL	61	17,244,300	11,487,300	4,542,300	( 39%)	5,757,000 ( 40%)

AUTHORIZED FUNDING                    CONTRACT ALLOCATED    67%                    INHOUSE REMAINING    33%

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PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES-ENT PROJECTED COMPLETE DATE
1 78 7036	ISOHERMAL ROLL-FORGING OF COMPRESSOR BLADES THIS PROJECT STATUS REPORT WAS SENT BACK TO THE COMMAND FOR CORRECTION.	300.0	250.0	50.0	JUN 79	DEC 80
1 79 7055	ULTRASONIC WELDING OF HELICOPTOR FUSELAGE STRUCTURES COUPON TESTING IS UNDERWAY. DIFFICULTIES HAVE BEEN ENCOUNTERED IN ESTABLISHING AN ACCEPTABLE SURFACE PREPARATION TREATMENT.	62.5			49.7	
1 76 7079	BRAIDING OF REINFORCED PLASTIC STRUCTURAL COMPONENT WORK ON PHASE 3 AND 4 WERE COMPLETED. KAMAN AEROSPACE CORP IS CURRENTLY PREPARING A FINAL REPORT WHICH SHOULD BE RECEIVED AT AMMRC EARLY IN THE NEXT REPORTING PERIOD.	441.0	338.4	57.5	JAN 79	JUN 81
1 79 7086	ABRADABLE SEALS FOR COMPRESSOR BLADE TIP APPLICATIONS STUDIES SHOWED THAT CHEM-BRAZE ATTACHMENT OF ABRADABLE SEALS TO HARDENED AZ31B MG, AMS 4376, WAS NOT FEASIBLE. THE CURE CYCLE ANNEALED THE METAL AND WORK HARDENING TECHNIQUES FOR AMS 4376 DESTROYED THE SEAL.	156.0	139.6	16.4	JAN 78	JUN 80
1 78 7091	PROCESSING AIRCRAFT COMPONENTS USING PULTRUSED MATERIALS A NEW VINYL ESTER RESIN SYSTEM WAS SELECTED FOR THE DOOR TRACK. THE RESIN CAN BE SEALED AND STORED AT ROOM TEMP IN A MATURED STATE FOR AN EXTENDED PERIOD OF TIME. BASELINE PULTRUSION DATA HAS BEEN STARTED AT AMMRC ON THIS RESIN.	100.0	80.7	9.0	SEP 80	NOV 80
1 77 7108	MANUFACTURING TECHNIQUES FOR TRANSMISSION SHAFT SEALS CONCENTRATED ON THE 5.5-INCH DIAMETER SEAL IN DEVELOPING THE MOLDING PROCESS. BOTH STATIC AND DYNAMIC SEAL TESTERS HAVE BEEN CHECKED AND ARE OPERATIONAL. TESTING OF THE 5.5-INCH DIA SEAL IS IN PROGRESS. AIR LEAKAGE TESTS REMAIN TO BE MADE.	320.0	150.0	128.9	SEP 80	JUN 81
1 80 7113	COMPOSITE REAR FUSELAGE MANUFACTURING TECHNOLOGY A CONTRACT WITH SIMORSKY WAS SIGNED ON 15 NOV 79. WORK IS PROCEEDING ON PHASE 2. DETAIL MANUFACTURING REFINEMENT. FABRICATION WILL BE ACCOMPLISHED WITH THIN SHELL STEEL AUTOCLAVE TOOLING IN FIVE MAJOR SUBASSEMBLIES.	1,000.0	910.0	23.0	DEC 80	DEC 80
1 77 7114	MFG TECHNIQUES FOR INFRARED SUPPRESSION AIRCRAFT COMPONENTS THE CONTRACTUAL EFFORT HAS BEEN COMPLETED EXCEPT FOR THE FINAL TECHNICAL REPORT.	264.0	95.0	169.0	APR 78	DEC 80

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1 79 7119	NON-DESTRUCTIVE EVALUATION TECH FOR COMPOSITE STRUCTURES A CONTRACT AMMRCFT EUSTIS FATIGUE TESTS ON K747 AH-1 COMPOSITE ROTORBLADE WAS CONTINUED. COMPOSITE BLADE WAS INSPECTED BY ULTRASONIC PULSE ECHO AND X-RADIOGRAPHY PRIOR TO FATIGUE TESTS. TESTS ARE BEING USED TO DETERMINE THE BLADE'S STRUCTURAL INTEGRITY.	400•0	95•9	257•4	JUN 80	SEP 82
1 80 7119	NON-DESTRUCTIVE EVAL TECHNIQUES FOR COMPOSITE STRUCTURES A CONTRACT WAS LET TO UNIV COLLEGE OF NORTH WALES TO FABRICATE PIEZOELECTRIC POLYMER ACOUSTIC EMISSION SENSORS. THESE SENSORS SHOULD HAVE WIDE APPLICATION FOR INSPECTION/TESTING OF COMPOSITE STRUCTURES.	260•0	59•0	68•3	SEP 82	SEP 82
1 78 7121	INTEGRALLY HEATED + PRESSURIZED TOOLING F/UTTAS ROTOR BLADES THREE BLADE ASSEMBLIES WERE COMPLETED USING SP-250-S GLASS PREPREG AND NARMCO 1113 ADHESIVE FILM. THE TOTAL CURE CYCLE TIME WAS 91 MINUTES. THE BLADES WERE MECHANICALLY TESTED AND PASSED ALL STRENGTH REQUIREMENTS.	234•0	125•7	46•6	JUN 79	SEP 80
1 78 7123	CONTINUOUS BALANCING OF HELICOPTER SHAFTING TWO TAIL ROTOR DRIVE SHAFTS FROM YAH-64 WERE BALANCED USING THE AUTOMATED PROCESS. A BALANCING DEMONSTRATION WAS CONDUCTED ON 6-7 FEB 1980. AN ECONOMIC ANALYSIS OF THE PROCESS WAS INITIATED.	120•0	87•0	31•0	JUN 79	OCT 80
1 78 7144	T700 ENGINE NOZZLE IN-PROCESS INSPECTION THE TWO PHASED CONTRACT HAS BEEN COMPLETED. THE TECHNICAL REPORT IS IN THE PROCESS OF BEING PREPARED AND IS SCHEDULED TO BE COMPLETED BY SEP 30, 1980.	209•0	178•1	1•0	NOV 79	SEP 80
1 78 7155	MFG METHODS FOR IMPROVED HIGH PERFORMANCE HELICOPTER GEARS NEGOTIATIONS WITH THE CONTRACTOR WERE CONCLUDED. CONTRACT WAS PREPARED AND SENT TO THE CONTRACTOR FOR SIGNATURE. STARTING DATE IS 1 JULY 80.	410•0	66•5	NOV 80	JUN 80	JUL 81
1 80 7156	COST EFFECTIVE MANUFACTURING METHODS FOR HELICOPTER GEARS CONTRACT WILL BE AWARDED AT THE END OF THIS REPORTING PERIOD.	180•0	4•0	JUL 81	JUL 81	JUL 81
1 78 7183	ULTRASONIC ASSISTED MACHINING FOR SUPERALLOYS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	60•0	245•0	191•0	54•0	MAR 81
1 79 7183	SEMI-AUTO COMPOSITE MFG SYS - HELICOPTER FUSELAGE STRUCTURES THE MANUFACTURING PLAN IS BEING PREPARED. DELAYS WERE EXPERIENCED IN NEGOTIATING THE SUBCONTRACT.	100•0	90•0	10•0	MAY 81	MAY 81

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1 80 7183	SEMI-AUTO COMPOSITE MANUFAC SYSTEM HELICOPTER SECONDARY STRU A CONTRACT WAS AWARDED TO HUGHES HELICOPTER. WORK INITIATION IS WAITING ON THE COMPLETION OF PORTIONS OF THE FY79 PROJECT.	140.0	125.0	125.0	DEC 81	DEC 81
1 79 7197	FABRICATION OF INTEGRAL ROTORS BY JOINING A T63 ROTOR HAVING A CAST DS AIRFOIL RING HIP BONDED TO A PRE-CONSOLIDATED HUB HAS COMPLETED 6000 CYCLES OF ITS SPIN TEST.	100.0	75.0	24.0	DEC 81	OCT 80
1 80 7197	FABRICATION OF INTEGRAL ROTORS BY JOINING PHASE IV IS BEING DELAYED UNTIL IMPLEMENTATION PLANS ARE FIRMED UP.	100.0		7.0	SEP 81	JUN 82
1 79 7199	LASER HARDENING OF GEARS, BEARINGS AND SEALS MATERIAL SPECIMEN TESTING HAS BEEN COMPLETED. THE OPTICAL SYSTEM HAS BEEN COMPLETED AND GEAR SPECIMENS HAVE BEEN HARDENED AND ARE UNDER EXAMINATION BY BELL.	180.0	150.0	30.0	OCT 80	MAY 82
1 80 7199	SURFACE HARDENING OF GEARS, BEARINGS AND SEALS BY LASERS ADDITIONAL GEAR SPECIMENS HAVE BEEN LASER TREATED. PROBLEMS INCLUDE THE OCCURRENCE OF BACK TEMPERING OF THE HARDENED FLANKS AND THE CASE THICKNESS AT THE ENDS OF THE TEETH IS LESS THAN REQUIRED. NEAR TERM SOLUTIONS ARE ANTICIPATED.	250.0	162.3	19.0	SEP 81	MAY 82
1 79 7200	COMPOSITE ENGINE INLET PARTICLE SEPARATOR DESIGN MODIFICATION AND MANUFACTURING DEVELOPMENT ARE ESSENTIALLY COMPLETE. SUBELEMENT FABRICATION IS COMPLETE, AND TESTING IS UNDERWAY. THE NDI AND QUALITY CONTROL EFFORTS HAVE BEEN INITIATED.	400.0	335.0	65.0	SEP 80	SEP 80
1 80 7200	COMPOSITE ENGINE INLET PARTICLE SEPARATOR INITIATION OF WORK IS WAITING ON COMPLETION OF THE FY79 PROJECT.	100.0	80.0	10.5	OCT 81	OCT 81
1 79 7202	APPLICATION OF THERMOPLASTICS A CONTRACT WAS AWARDED TO BOEING VERTOL COMP. 1 JUN 79. THE FINAL CONFIGURATION UTILIZING KEVLAR FABRIC REINFORCED P-1700 POLYSULFONE THERMOPLASTIC FOR THE ENGINE ACCESS DOOR ASSEMBLY WAS ESTABLISHED. THE MFG PROCESSIS BEING ESTABLISHED.	225.0	164.5	60.5	JUN 80	SEP 81
1 80 7202	APPLICATION OF THERMOPLASTICS TO HELICOPTER SECONDARY STRUCS TOOLING FOR BOTH THE INNER AND OUTER SKINS WAS COMPLETED. TOOLING RESIN WAS USED TO FABRICATE THE TOOLING. TOOL PROOFING IS READY T9 BEGIN ON THE PROTOTYPE ENGINE ACCESS DOOR ASSEMBLY.	225.0	180.0	45.0	OCT 81	OCT 81
1 77 7238	PRECISION FORGED ALUMINUM POWDER METALLURGY COMPACTION PRESSURE AND EVACUATION TIMES FOR VACUUM FORGING WERE OPTIMIZED FOR GOOD MECHANICAL PROPERTIES. ALL PROTOTYPE FORGINGS HAVE BEEN COMPLETED.	72.6	50.0	22.1	MAR 79	SEP 80

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			RIZED	VALUES	LABOR AND MATERIAL	PROJECTED COMPLETE	PROJECTED COMPLETE
			(\$000)	(\$000)	MATERIAL DATE	(\$000)	DATE
1 79 7238	PRECISION FORGED ALUMINUM POWDER METALLURGY BOEING-VERTOL HAS BEEN SELECTED AS A SUBCONTRACTOR. ALCOA HAS COMPLETED MOST OF THE TOOLING FOR ARMY COMPONENTS.			398.7	350.0	30.9	APR 81 APR 80
1 80 7240	MACHINING METHODS FOR ESR 4340 STEEL FOR HELICOPTER APPL. RFQ RESPONSE WAS IN EXCESS OF AVAILABLE FUNDS. PROGRAM WILL BE BROKEN DOWN INTO TWO PHASES AND FUNDED INCREMENTALLY. AMWRC HAS NOW REQUESTED HUGHES TO PREPARE QUOTATIONS ON THE TWO PHASES.			125.0			
1 79 7241	HOT ISOSTATIC PRESSING OF TITANIUM CASTINGS INITIAL CASTINGS HAVE BEEN Poured.			481.5	431.5	16.0	SEP 81 SEP 81
1 80 7241	HOT ISOSTATIC PRESSED TITANIUM WORK WILL NOT BE INITIATED UNTIL PHASE III IS COMPLETE.			100.0			JUL 80 MAR 82
1 80 7243	MACHINING OPERATIONS ON KEVLAR LAMINATED CONSTRUCTIONS PROCUREMENT PACKAGE AND SOLICITATION REVIEW BOARD WERE COMPLETED AND THE REQUEST FOR QUOTATIONS ISSUED ON 1 MAY 80 TO 64 PROSPECTIVE BIDDERS. RESPONSES TO THESE SOLICITATIONS ARE DUE ON 12 JUN 80			150.0			DEC 81 DEC 81
1 78 7284	SUPERPLASTIC FORMING/DIFFUSION BONDING OF TITANIUM THE WORK PLANNED FOR THIS PROJECT HAS BEEN COMPLETED SATISFACTORILY.			108.0	80.5	26.5	JUL 81 JUN 80
1 79 7284	SUPERPLASTIC FORMING/DIFFUSION BONDING OF TITANIUM THE PROCESS VERIFICATION TEST PLAN HAS BEEN COMPLETED. THE WOOD MACHINING TEMPLATE IS APPROXIMATELY 75% COMPLETE.			360.0	360.0		OCT 82 NOV 81
1 79 7285	CAST TITANIUM COMPRESSOR IMPELLERS SOLAR HAS PURCHASED 20 CASTINGS FROM TITECH AND PCC. DIMENSIONAL AND METALOGRAPHIC TESTS HAVE BEEN COMPLETED. SPECIMEN TESTING OF IMPELLER SECTIONS AND CAST-TO-SIZE TEST BARS HAS BEEN INITIATED.			300.0	185.0	81.8	FEB 80 FEB 81
1 80 7285	CAST TITANIUM COMPRESSOR IMPELLERS WORK IS JUST BEING INITIATED FOR THIS PHASE.			270.0	220.0		SEP 81 OCT 81
1 79 7286	SUPERALLOY POWDER PRODUCTION FOR TURBINE COMPONENTS METHODS TO CONTROL CONTAMINATES IN THE ATOMIZATION STEP ARE BEING WORKED ON.			358.0	210.0	118.4	FEB 81 MAR 80
1 80 7286	HIGH QUALITY SUPERALLOY POWDER PRODUCTION FOR TURB. COMP. WORK ACCOMPLISHED DURING THIS REPORTING PERIOD WAS WITH FY78 AND FY79 AIR FORCE AND ARMY FUNDS RESPECTIVELY. FY80 FUNDS WILL BE USED FOR ENGINEERING SUPPORT.			11.0			MAR 81 MAY 82

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1 79 7288	OPTIMAL CURING COND. FOR PROCESS FIBER-REINFORCED COMPOSITES COMPOSITE LAMINATES OF GLASS/EPOXY PREPREGS HAVE BEEN LAID UP AND CURED USING AUTOCLAVE, COMPRESSION PRESS, AND MICROWAVE CURING TECHNIQUES IN AN EFFORT TO ALTER CURE TEMPERATURES AND TIMES FOR ACHIEVING OPTIMAL CURE USING LOWEST ENERGY CONSUMPTION.		112•5		29•3	MAY 80 DEC 81
1 80 7288	DETERMINATION OF OPTIMAL CURING CONDITIONS FOR COMPOSITES COMPOSITE LAMINATES WITH RESIN & CURE TECHNIQUE, TIME, AND TEMPERATURE AS VARIABLES WERE TESTED FOR MECHANICAL PROPERTIES. MECHANICAL PROPERTIES VARIED SLIGHTLY, BUT CHEMICAL COMPOSITION VARIED SIGNIFICANTLY. COOLDOWN RATE EFFECTS ARE BEING STUDIED.		200•0		SEP 80	SEP 80
1 79 7291	TITANIUM POWDER METAL COMPRESSOR IMPELLER CONTRACT AWARDED ON 6 JUNE 80.		90•0	50•0	40•0	SEP 80 JUL 80
1 80 7291	TITANIUM POWDER METAL COMPRESSOR IMPELLER CONTRACT AWARDED ON 6 JUNE 80.		240•0	150•0	36•0	JUN 81 JUN 81
1 79 7297	PROD-INSTALL OF URETHANE EDGE GUARDS ON ROTOR BLADES THE TEST MATRIX HAS BEEN DESIGNED. FABRICATION OF THE TEST TOOL HAS BEEN COMPLETED. AND COUPON TESTING USING THE PROTOTYPE TEST TOOL IS CURRENTLY UNDERWAY.		183•0	155•4	23•9	JUN 80 DEC 80
1 79 7298	HIGH TEMPERATURE VACUUM CARBURIZING CONTRACT BIDS HAVE BEEN RECEIVED AND ARE BEING REVIEWED. THE CONTRACT SHOULD BE AWARDED DURING AUGUST 1980.		25•0		1•5	MAY 80 SEP 81
1 80 7298	HIGH TEMPERATURE VACUUM CARBURIZING CONTRACT BIDS HAVE BEEN RECEIVED AND ARE BEING REVIEWED. THE CONTRACT SHOULD BE AWARDED DURING AUGUST 1980.		150•0		0•4	SEP 80 SEP 83
1 79 7315	LOW COST MANUFACTURE OF POISE GIMBAL THE AZIMUTH GIMBAL WAS SELECTED FOR FABRICATION FROM COMPOSITE MATERIALS. SURVEY OF MATERIALS IS IN PROCESS WITH WESTINGHOUSE.		202•0	170•0	7•4	JUL 81 SEP 81
1 79 7338	COMPOSITE TAIL SECTION T-1. DESIGN REFINEMENTS ARE ON SCHEDULE. THE FINAL LAYOUTS ARE COMPLETE AND FABRICATION DRAWINGS ARE UNDERWAY. T-2. BRIEFING WAS HELD IN MAY 80. T-3. FABRICATION REFINEMENTS ARE UNDERWAY FOR CURE CYCLE, PROCESSING, BUILD-UP AND TOOLING OPTIMIZATION.		980•0	887•0	87•0	JUL 80 JUL 82
1 80 7338	COMPOSITE TAIL SECTION TOOL PLANNING WAS COMPLETED AND DESIGN HAS STARTED. THE PHASE 2 EFFORT (FY80) WAS AWARDED TO HUGHES HELICOPTERS IN MAY 80.		975•0	809•0	80•0	JUL 82 JUL 82

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1 80 7339	FILAMENT WOUND COMPOSITE FLEXBEAM TAIL ROTOR PHASE 1A WAS COMPLETED. FABRICATION OF THE RING WINDING MACHINE WAS COMPLETED AND DELIVERED TO HUGHES HELICOPTER IN JUL 80. FABRICATION OF THE FIRST CFTR WILL OCCUR IN JUL 80 WITH LAB TESTS AND WIND TUNNEL TESTS COMPLETION EXPECTED BY THE YEAR END.	1,355.0	1,198.0	42.0	AUG 82	AUG 82
1 80 7340	COMPOSITE MAIN ROTOR BLADE ROOT AND TIP ULTIMATE TESTS WERE COMPLETED IN JAN 80. WHIRL TOWER TESTS BEGAN IN FEB 80. A ROOT/MID-SPAN FATIGUE TEST FAILURE OCCURRED IN MAY. THE PRIMARY CAUSE OF FAILURE WAS ATTRIBUTED TO FABRICATION FLAWS IN THE LUG ATTACHMENT AREA OF THE ROOT.	2,092.5	1,932.2	30.0	NOV 80	NOV 80
1 80 7341	STRUCTURAL COMPOSITES FABRICATION GUIDE A MILPR EFFECTIVE 24 APR 80 WAS SENT TO THE AIR FORCE. FORMAT CHANGES AND INPUT REQUIREMENTS FOR THE THIRD EDITION OF THE DOD COMPOSITES FABRICATION GUIDE WERE DETERMINED IN MAY 1980 AT A MEETING OF THE FABGUIDE TEAM.	70.0			DEC 80	DEC 80
1 80 7342	PULTRUSION OF HONEYCOMB SANDWICH PANELS A SOW FOR A CONTRACT TO PRODUCE FLOOR BEAMS AND FLOOR PANELS FOR THE CH-47 (MOD) WAS WRITTEN AND SUBMITTED TO PROCUREMENT.		115.0		SEP 82	SEP 82
1 78 7348	LWT COMPOSITE FASTENING SYS FOR COMPOSITE HELICOPTER COMPS ALL THREE TEST PANELS (40X40 INCHES) HAVE BEEN FABRICATED AND FATIGUE TESTING HAS BEEN INITIATED. THE TEST PANELS ARE REPRESENTATIVE OF THE BLACK HAWK TAILBOOM SIDE PANEL.		216.0		JUN 80	AUG 80
1 79 7371	INTEGRATED BLADE INSPECTION SYSTEM (IBIS) THE PRODUCTION TYPE INSPECTION MODULE IS 75% COMPLETE. THE PROJECT IS PROCEEDING ON SCHEDULE.		212.0		MAR 82	NOV 81
1 80 7371	INTEGRATED BLADE INSPECTION SYSTEM (IBIS) THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.		100.0			
1 80 7382	LOW COST COMPOSITE MAIN ROTOR BLADE FOR THE UH-60A THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.			100.0		
1 80 7391	BEARING DIAGNOSTIC AND RECLAMATION TECHNIQUES THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.			100.0		
1 75 8035	PROD OF TRANSPARENT FORMS OF POLYOLEFIN FOR LTWT ARMOR APPLN TASK III COMPLETED. THE ORIGINAL MOLDING CYCLE PARAMETERS OF TEMPERATURE, TIME AND PRESSURE WERE ESTABLISHED. TASK IV ON THE SELECTION OF PROTECTIVE COVER SHEETS IS IN PROGRESS. CONTRACTOR NOW ESTIMATES WORK WILL BE COMPLETED IN OCT, FINAL REPORT DEC			125.0	31.0	SEP 76 DEC 80

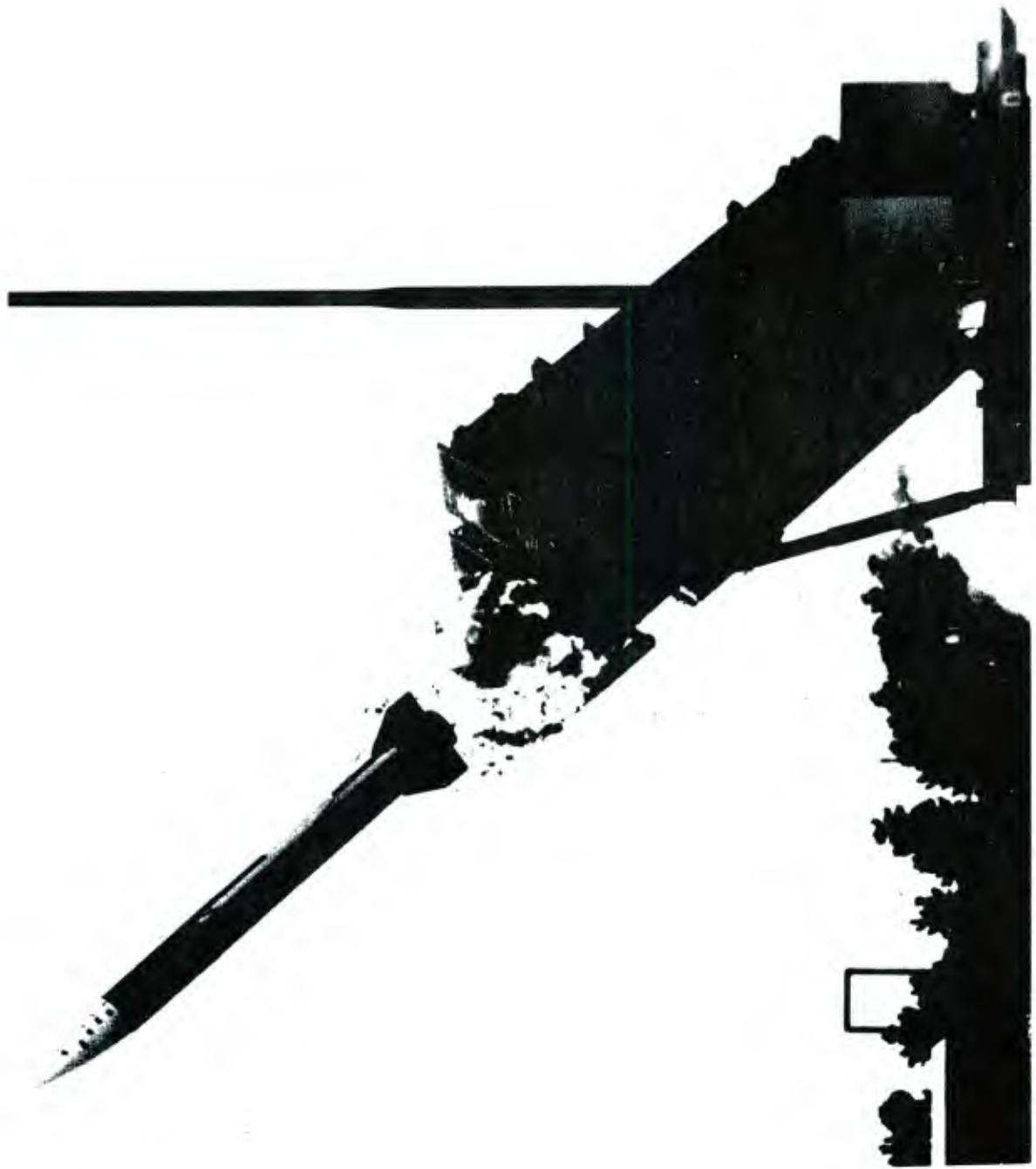
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
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PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
1 76 8148	PROCESSING ADVANCED GEAR MATERIALS THE 4 SQUARE TESTER IS REPAIRED. A FIBER OPTIC DEVICE WAS INSTALLED TO PERMIT EXAMINATION OF GEAR TEETH WITHOUT DISMANTLING PROTECTIVE SHIELDING AROUND THE MACHINE.		150.0	34.0	112.0	DEC 78 MAR 81

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1 76 8148 PROCESSING ADVANCED GEAR MATERIALS  
 THE 4 SQUARE TESTER IS REPAIRED. A FIBER OPTIC DEVICE WAS  
 INSTALLED TO PERMIT EXAMINATION OF GEAR TEETH WITHOUT DISMANTLING  
 PROTECTIVE SHIELDING AROUND THE MACHINE.

MISSILE COMMAND  
(MICOM)



## MISSILE COMMAND

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT ALLOCATED ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING EXPENDED ( \$ )	INHOUSE FUNDING REMAINING ( \$ )	* * * * *
				ALLOCATED ( \$ )	EXPENDED ( \$ )			
76	1	572,500	433,500	411,200	( 94%)	139,000	139,000	(100%)
77	0	0	0	0	( 0%)	0	0	( 0%)
77	4	3,034,000	2,589,000	2,470,400	( 95%)	445,000	400,400	( 89%)
78	17	5,538,700	3,504,500	2,960,100	( 84%)	2,034,200	1,259,300	( 61%)
79	22	8,680,000	6,078,500	3,337,200	( 54%)	2,601,500	1,697,100	( 65%)
80	23	7,720,000	1,109,600	241,500	( 21%)	6,610,400	56,900	( 0%)
81	0	0	0	0	( 0%)	0	0	( 0%)
82	0	0	0	0	( 0%)	0	0	( 0%)
TOTAL	67	25,545,200	13,715,100	9,420,400	( 68%)	11,830,100	3,552,700	( 30%)

AUTHORIZED FUNDING CONTRACT ALLOCATED 54% INHOUSE REMAINING 46%

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PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL AND MATERIAL DATE	PRESENT PROJECTED COMPLETE DATE
R 80 1018	IMPROVED MFG. PROCESSES FOR DRY TUNED ACCELEROMETERS (CAM) THE CONTRACT HAS BEEN AWARDED AND AN UPDATED MILESTONE PLAN PREPARED. THIS EFFORT WILL DEVELOP IMPROVED MMT FOR THE PRODUCTION OF DRY TUNED ACCELEROMETERS.	228.0	228.0	228.0	MAR 81	MAR 81
R 80 1021	COMPUTERIZED PROD PROCESS PLAN F/MACHINED CYLINDRICAL PARTS THE CONTRACT TO DEVELOP A COMPUTERIZED PROCESS PLANNING SYSTEM WAS AWARDED TO UTC. TECHNICAL MILESTONES HAVE BEEN FORMULATED.	240.0	189.8	189.8	OCT 82	JUN 82
R 80 1023	DIGITAL FAULT ISOLATION F/HYBRID MICROELECTRONIC MODULES CONTRACT NOT YET AWARDED. GOALS ARE TO ADAPT THE PCB PROBING TECHNIQUES AND EQUIPMENT FROM PROJECT R 78 3242 TO THE SPECIALIZED CIRCUITRY AND PROBING REQUIREMENTS OF HYBRID MODULES. THE PROBE TRACE METHOD FOR DIGITAL FAULT ISOLATION WILL BE USED.	300.0	0	0	OCT 81	OCT 81
R 80 1024	MMT RADIO FREQUENCY STRIPLINE HYBRID COMPONENTS CONTRACT NOT YET AWARDED. PROJECT WILL ADAPT SEMIADDITIVE PCB PROCESSES TO STRIPLINE AND MICROSTRIP HYBRID DEVICES. RF PLASMA ETCHING, SOLDERING, EUTECTIC BONDING, ULTRASONIC WELDING, AND THERMAL COMPRESSION BONDING WILL BE OPTIMIZED.	745.0	0	0	AUG 82	AUG 82
R 80 1026	LOW COST MANUF TECH F/THE HIGH PROD OF MISSILE VANES ***** DELINQUENT STATUS REPORT *****	305.0	0	0	JUN 81	JUN 81
R 79 1041	LSI FABRICATION METHODOLOGY IMPROVEMENT MARTIN, HARRIS, AND RCA ARE EACH WORKING ON AN LSI PREAMPLIFIER. MASKS WERE MODIFIED FOR CIRCUIT PRODUCIBILITY AND YIELD. HARRIS IS ALSO WORKING ON AN LSI LIMIT-SUM CIRCUIT. RCS-301 REPORT EXPLAINS THE WORK VERY CLEARLY. DEC PDP-11/34A ORDERED.	1,000.0	0	992.8	NOV 80	NOV 80
R 80 1071	HYBRID INTEGRATED CAD AND MANUFACTURING (HICADAH) PROCUREMENT PACKAGE IS 75% COMPLETE. A CONTRACTOR WILL ESTABLISH AUTOMATED PROCEDURES FOR DESIGNING, LAYING OUT, AND BUILDING HYBRID CIRCUITS. WILL USE IPAD AND ICAM METHODS AND TIE IN WITH CURRENT HYBRID PROJECTS.	100.0	0	0	SEP 81	SEP 81
R 80 1075	ELECTRONICS COMPUTER AIDED MANUFACTURING (ECAM) TECHNICAL REQUIREMENTS & EVALUATION CRITERIA WERE REVIEWED BY CAD-CAM-ELECTRONICS WORKING GROUP. COMMENTS WERE INCORPORATED. CONTRACT SERVICES REVIEW BOARD IS CHECKING THE PACKAGE. CONTRACTOR WILL DEVELOP ARCHITECTURE FOR ECAM USING ICAM DEFINITION.	300.0	0	0	SEP 81	SEP 81
3 77 3115	ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****	594.0	206.0	369.0	SEP 78	DEC 80

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3 78 3115	ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****	681•0	234•0	370•0	SEP 79	DEC 80
3 79 3115	ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****	693•0		526•0	SEP 80	SEP 80
3 80 3115	ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****	747•0				
R 79 3116	ROSETTE AIR DEFENSE SEEKER OPTICS AND DETECTORS ***** DELINQUENT STATUS REPORT *****	750•0	639•6	19•0	SEP 79	OCT 80
R 78 3121	APPLICATION AND NDT OF LINE PIPE FOR MOTOR COMPONENTS THE WELD PIPE HAS BEEN RECEIVED, THE COMPONENTS HAVE BEEN FABRICATED AND ARE READY FOR SHIPMENT. A DRAFT FINAL REPORT HAS BEEN PREPARED AND IS BEING REVIEWED.	300•0	239•3	60•7	SEP 79	DEC 80
R 78 3133	LITHIUM FERRITE PHASE SHIFTER FOR PHASED ARRAY RADAR RAYTHEON FINALIZED THE NOMINAL COMPOSITION. IRON STOICHIOMETRY AND POWDER PROCESSING STEPS FOR LITHIUM FERRITE TOROIDS FOR PHASE SHIFTERS. TOROID WALL THICKNESS AND STRAIGHTNESS ARE HELD TO + OR -•003 " IN A 5 " LENGTH, VERY CLOSE FOR THIS MATERIAL.	325•0	195•5		SEP 79	DEC 80
R 77 3135	PROCESS DEVELOPMENT FOR CARBORANE MANUFACTURE ***** DELINQUENT STATUS REPORT *****	2•000•0	2•000•0		SEP 78	JUL 80
R 79 3136	IMPROVED MFR PROCESSES FOR COMPLIANT BEARING GYROS THE AUTOMATED CHECKOUT STATION IS COMPLETED. THE ROTOR BALANCING MACHINE WAS COMPLETED AND CHECKED OUT. ADDITIONAL SLIPPAGE BEYOND THAT SHOWN WILL OCCUR.	350•0	289•5	38•5	JUL 80	DEC 80
R 80 3139	PROD METHODS F/MILLIMETER SEEK F/TERMINAL HOMING APPLICATION CONTRACT NOT YET LET. WILL ESTABLISH PROCESSES FOR PRODUCING MILLIMETER WAVE SECTIONS OF MILLIMETER SEEKERS FOR MISSILES AT LOWER COST. WILL SIMPLIFY SIGNAL FEED AND FRONT END ASSEMBLY. WILL REDUCE NUMBER OF COMPLEX ASSEMBLIES.	415•0			MAY 82	MAY 82
R 79 3142	PRODUCTION METHODS FOR LOW COST PAPER MOTOR COMPONENTS AUTOMATIC STRIP WINDING AND ADHESIVE APPLICATION OPERATION COMPLETE. HEAD END AND NOZZLE CLOSURE ATTACHMENT OPTIMIZATION CARRIED OUT. APPLICATION OF NDT METHODS FOR SCREENING CRITICAL DEFECTS NEARING COMPLETION.	275•0	242•8	22•2	JUL 80	JUL 80
R 80 3142	PRODUCTION METHODS F/LLOW COST PAPER MOTOR COMPONENTS ***** DELINQUENT STATUS REPORT *****	200•0			JUN 82	JUN 82

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PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
R 79 3146	HIGH DENSITY MULTILAYER THICK FILM HYBRID MICRO CIRCUITS MICROELECTRONICS CORP MADE SCREENS FOR FABRICATING HIGH DENSITY MULTILAYER HYBRID CIRCUITS WITH 3 MIL LINES & 3 MIL SPACES. GOAL IS TO USE OPTIMUM MATERIALS, SINGLE FIRING & IMPROVED PHOTOLITHOGRAPHIC TECHNIQUES TO INCREASE YIELD AND REDUCE COST.  ADDITIVE PROCESSES FOR FABRICATION OF PRINT CIRCUIT BOARDS ***** DELINQUENT STATUS REPORT *****	350.0	240.0	41.2	JUN 80	JAN 81
R 78 3147	PRODN PROCESS + TECHNIQUES FOR SEALING HYBRID MIC-CIR PACK AT MICOM A HYBRID CIRCUIT HERMETIC SEALER & LEAK TEST SYSTEM IS UNDER CONSTRUCTION. M&K ASSC. INSTALLED FINE LEAK TEST CHAMBER. SOLID STATE ENG CORP ASSEMBLED CUSTOM DRY BOX SYS. HYBRID PACKAGE WAS PARALLEL SEAM WELDED & LEAK TESTED IN DDY NITROGEN.	250.0	170.1	79.9	JUN 78	SEP 80
R 78 3165	PROD CONTROLS TO PREVENT PLATED-THROUGH HOLE CRACKING HUGHES COMPLETED THE STATISTICAL PLATING TASK THRU ALL PLATING STEPS. THE SPEC FOR MLB PROCESSING WAS COMPLETED AND SUBMITTED TO MICOM. POLYIMIDE AND EPOXY GLASS TEN LAYER MLB'S USING OPTIMIZED COPPERPLATING PROCESS ARE BEING MADE. DEMO HELD APR 80.	220.0	211.0	9.0	NOV 79	MAR 81
R 78 3167	AUTO OPTICAL INSPECTION OF PC BOARDS AND COMPONENTS(CAM) ***** DELINQUENT STATUS REPORT *****	223.0	114.1	108.9	MAR 79	MAR 81
R 77 3169	OPTICAL INSP OF PRINTED CIRCUIT BOARDS AN OPERATING INSPECTION SYSTEM WAS DESIGNED AND ASSEMBLED. AND USED TO ESTABLISH OPERATING PARAMETERS, CAPABILITY, AND COST EFFECTIVITY ON A HIGH-SPEED PRODUCTION LINE. CHYRSLER IS OPERATING THIS SYSTEM FOR AUTOMATIC OPTICAL INSPECTION OF PUB.	275.0	268.6	6.4	SEP 78	DEC 80
R 80 3169	AUTO MONITOR AND CONTROL FOR WAVE SOLDERING MACHINES THIS PROJECT IS NEARING COMPLETION. AN END OF CONTRACT DEMONSTRATION IS PLANNED FOR 16 SEP 1980. A MICROPROCESSOR CONTROL SYSTEM HAS BEEN DESIGNED TO AUTOMATICALLY MONITOR AND CONTROL THE COMPLETE WAVE SOLDERING PROCESS.	90.0	90.0	SEP 80	SEP 80	SEP 80
R 78 3171	IMPROVED PROCESSES FOR INERTIAL GRADE Q-FLEX ACCELEROMETER THIS PROJECT IS NEARING COMPLETION. AN END OF CONTRACT DEMONSTRATION IS PLANNED FOR 16 SEP 1980. A MICROPROCESSOR CONTROL SYSTEM HAS BEEN DESIGNED TO AUTOMATICALLY MONITOR AND CONTROL THE COMPLETE WAVE SOLDERING PROCESS.	450.3	355.1	95.2	SEP 80	OCT 80
R 77 3183	IMPROVED PROCESSES FOR INERTIAL GRADE Q-FLEX ACCELEROMETER SUNSTRAND DEVELOPED NEW MFG. PROCESSES FOR INERTIAL GRADE QUARTZ ACCELEROMETERS. NEW MATERIAL DEPOSITION TECHNIQUES & WELDING METHODS FOR IMPROVING BIAS STABILITY & LOWERING COST WERE EVALUATED. HARDWARE DELIVERED & TESTED ON LANCE. FINAL REPT DONE.	165.0	114.4	25.0	DEC 78	JUN 80
R 78 3183	IMPROVED PROCESSES FOR INERTIAL GRADE Q-FLEX ACCELEROMETER SUNSTRAND EXPERIENCED PROBLEMS IN HEAT TREATING ACCELEROMETER EXCITATION RINGS. HARDWARE WILL BE DISASSEMBLED AND REBUILT CAUSING 4 MONTHS SCHEDULE SLIPPAGE. METHODS FOR MOISTURE CONTROL IN ACCELEROMETER SENSOR MUST BE DEVELOPED.	180.0	115.6	10.0	JUL 80	JAN 81

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R 78 3188	INFRARED IMAGING SEEKERS FOR THERMAL HOMING MISSILES ***** DELINQUENT STATUS REPORT *****	500.0	449.9	25.0	MAR 79	DEC 80
R 79 3204	INTERNAL SHEAR FORMING OF MISSILE STRUCTURES THE BASIC DESIGN CONCEPT DID NOT SUPPORT THE LOADS GENERATED. THE CONCEPT WAS DRAMATICALLY REVISED WITH GOOD RESULTS. INTERNAL SHEAR FORGING PREFORMS TO FINISH DIMENSION IS NOW PROCEEDING.	200.0	150.1	49.9	SEP 80	DEC 80
R 79 3217	AUTOMATED PRODUCTION METHODS FOR TRAVELING WAVE TUBES LITTON HAD DIFFICULTY MEETING CATHODE SPECS THAT REQUIRE 300 HOURS OPERATING LIFE AND 125 FAST WARM-UP CYCLES. FLAME SPRAYED AND POTTED HEATERS WERE TRIED AND FAILED. A CATAPHORETICALLY COATED HEATER WITH MO-NI POTTING WAS TESTED AND MET THE SPECS.	740.0	574.6	120.0	JUL 80	MAR 81
R 80 3217	AUTOMATED PRODUCTION METHODS FOR TRAVELING WAVE TUBES THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	335.0				
R 78 3218	REDUCE THE FINISHING COST OF FUSED SILICA RADGEMES CORRELATION BETWEEN CASTINGS AND MANDREL DIMENSIONS WAS COMPLETED. MANDREL MODIFICATION PARAMETERS WERE DEVELOPED AND THE MANDREL IS BEING MODIFIED. A MEETING WITH RAYTHEON WAS HELD TO FACILITATE FUTURE TECHNOLOGY TRANSFER.	300.0	12.7	281.7	OCT 79	DEC 80
R 79 3219	AUTOMATIC POLYMER ATTACHMENT PRODUCTION METHODS MICROELECTRONICS CORP EVALUATED AUTOMATED PROCESSES FOR ATTACHING CHIPS TO SUBSTRATES WITH ADHESIVE POLYMER BONDING. PHASE I WORK COMPLETED. CONTRACTOR EVALUATED INDUSTRY CAPABILITY & SELECTED OPTIMUM SYSTEM STARTING POINT. FINAL REPORT DRAFTED.	200.0	140.0	60.0	AUG 79	JAN 80
R 80 3219	AUTOMATIC POLYMER ATTACHMENT PRODUCTION METHODS CONTRACT NOT YET AWARDED. FOLLOW-ON TO R 79 3219. PHASE II WILL DEVELOP THE SPECIFIC SUBSTRATE POLYMER AND CHIP HANDLING MECHANISM. COMPUTER HARDWARE & SOFTWARE NECESSARY TO INTEGRATE EPOXY APPLICATION & CHIP PLACEMENT SYSTEM WILL BE DESIGNED.	200.0		14.3	JAN 81	JAN 81
3 76 3227	LOW COST PROD METH FOR HAND HYBRID CHIP W/TAPE CAR LEAD FR SEE SUBTASKS BELOW. HONEYWELL IS CONTINUING ON A SMALL CONTRACT EXTENSION TO GATHER COST DATA ON THE BTAB PROCESS. THE METHOD LOOKS ECONOMICAL FOR LARGE VOLUME CIRCUITS BUT UNECONOMICAL FOR LOW VOLUME MILITARY CIRCUITS.	572.5	433.5	139.0	NOV 77	JAN 81
3 76 3227 A	HONEYWELL WORK HONEYWELL COMPLETED THIS CONTRACT.	200.0	149.9	50.1	OCT 79	OCT 79
3 76 3227 B	DETEx SYSTEMS WORK DETEx SYSTEMS WORK IS COMPLETED. DETEx DEVELOPED UTILIZATION TECHNIQUES.	43.0	32.0	11.0		

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PROJ NO.	TITLE + STATUS	AUTHO- RIZED		CONTRACT		EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
		VALUES (\$000)	MATERIAL (\$000)	VALUES (\$000)	MATERIAL (\$000)			
3 76 3227 C	HONEYWELL MODIFICATION HONEYWELL TERMINATED WORK ON THIS CONTRACT BECAUSE RCA STOPPED SUPPLYING WAFERS OF THE TYPE NEEDED.			72•4	54•1	18•3	JUN 80	
3 76 3227 D	HONEYWELL OPTION HONEYWELL DELIVERED REPORTS DESCRIBING PRODUCTION AND TEST PROCEDURES FOR SAFING AND ARMING CIRCUITS AND BAND PASS UNITS.			234•6	175•0	59•6	NOV 80	
3 76 3227 E	HONEYWELL OPTION I EXTENSION HONEYWELL CONTINUES TO BUMP CHIPS AND BUILD SYNC COUNTERS FOR USE IN THE B-52 TO PROVE THE TAPE CARRIER LEAD FRAME TECHNOLOGY. BTAB APPEARS TO BE UNECONOMICAL FOR LOW VOLUME CIRCUITS.			22•5	22•5		JAN 81	JAN 81
R 78 3229	METHODOLOGY FOR PRODUCING LOW COST/ DISPOSABLE MANDRELS CONTRACTOR EFFORT COMPLETE AND FINAL REPORT PUBLISHED. DIFFICULTY WITH THE MOTOR CASES FOR IN-HOUSE LOADING CAUSED DELAY. 1ST CASE NOW LINED AND SCHEDULED FOR JULY 80 LOADING. LOADING AND EVALUATION SCHEDULED TO BE COMPLETED BY DEC 80.			273•4	198•4	47•2	SEP 79	DEC 80
R 79 3242	DIGITAL FAULT ISOLATION OF PRINTED CIRCUIT BOARD AUTOMATIC TEST EQUIPMENT (MODEL-DTS-70) HAS BEEN FULLY INTEGRATED & OPERATING. WORK CONTINUES TO ESTABLISH TEST METHODOLOGY & TO PREPARE & DEBUG TEST SOFTWARE. SOME TEST SOFTWARE HAS ALREADY ACHIEVED 95 PERCENT TEST COMPREHENSIVENESS FOR ONE OPCB.			425•0	390•0	27•0	APR 80	OCT 80
R 78 3253	HIGH CURRENT DENSITY CATHODES *** DELINQUENT STATUS REPORT ****			175•0	124•7	50•3	JUN 80	JUN 80
R 79 3253	HIGH CURRENT DENSITY CATHODES SPERRY UNIVAC PRODUCED TWO CATHODES WHICH HAD LITTLE OR NO EMISSION. SPERRY WORKED TO IMPROVE THESE CATHODE PROCESSES-SILICON DIOXIDE ETCHING, PHOTORESIST DEVELOPMENT, & ALUMINUM PLASMA ETCH RESIST MASK LAYER ETCHING. THESE IMPROVED THE Emitter CONES			175•0	126•3		JUN 80	NOV 80
R 80 3254	LOW COST SEMI-FLEXIBLE THIN FILM SEMICONDUCTORS (CAM) PHASE II EFFORT IS FOLLOW-ON TO R 78 3254. MICROELECTRONICS CORP WILL FABRICATE FUNCTIONAL THIN FILM CIRCUITS USING PILOT LINE FROM PHASE I. NEW MATERIALS AND IMPROVED METALLIZATION COATINGS WILL BE TESTED AND EVALUATED.			315•0	315•0		JUN 81	JUN 81
R 80 3263	PRINTED WIRE BOARDS UTILIZING 4-LEADLESS COMPONENTS MICROELECTRONICS ENGINEERING WILL ESTABLISH PRODUCTION PROCESSES FOR SOLDERING LEADLESS MICROELECTRONIC COMPONENTS TO FLEXIBLE BOARDS AND FOR APPLYING CONFORMAL COATING. BELT-REFLOW SOLDERING AND VAPOR PHASE SOLDER REFLOW WILL BE EVALUATED.			250•0	127•0	9•5	JAN 81	JAN 81

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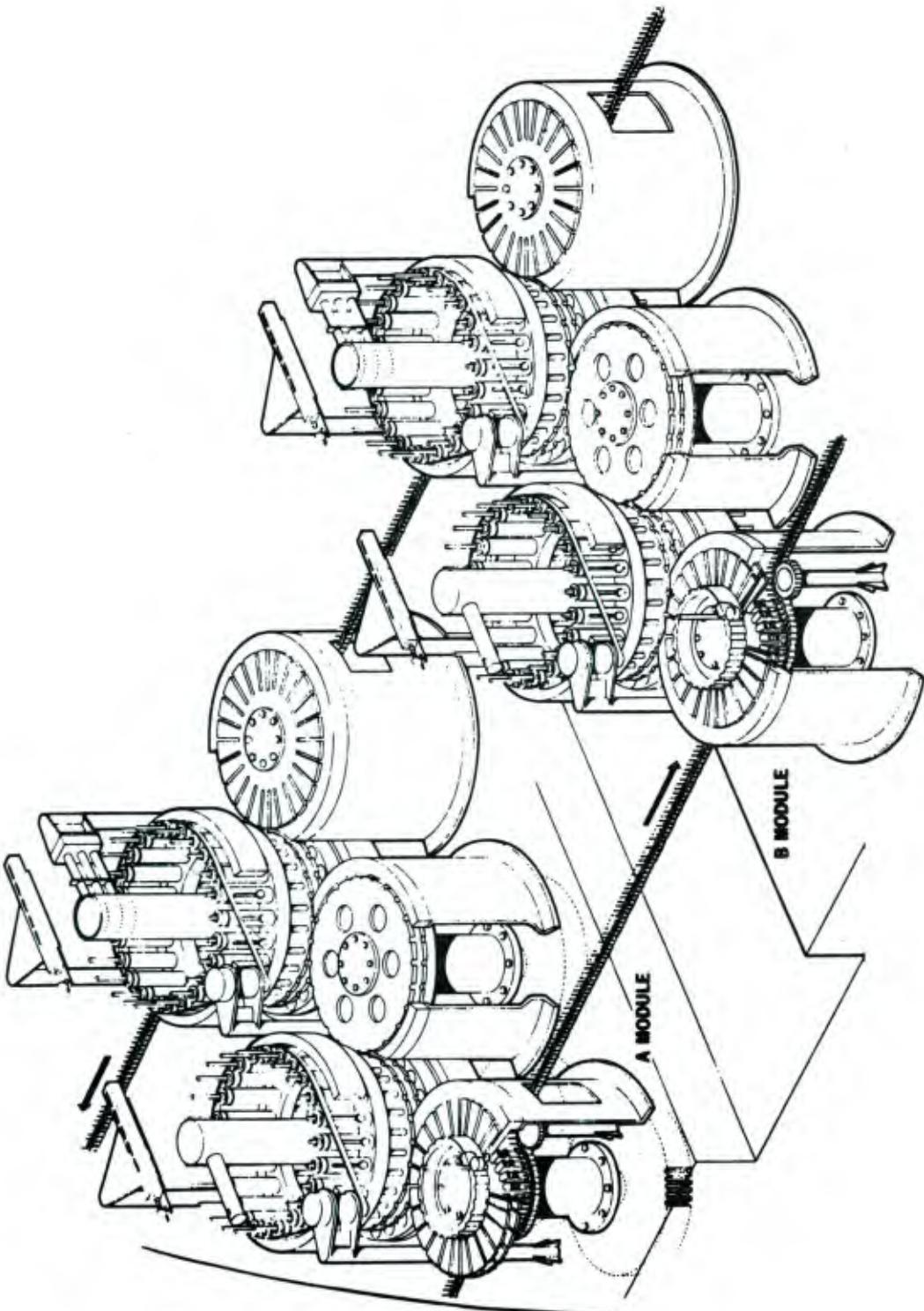
PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
R 79 3268	AUTOMATIC CONTROL OF PLATING (CAM) NO WORK ACCOMPLISHED THIS PERIOD. SUBCONTRACTORS DELAY HAS SLIPPED SCHEDULE THREE MONTHS WITH NO ADDITIONAL COST.		450.0	209.4	240.4	SEP 80 DEC 80
R 79 3272	FLEX PRINTED CIRCUITS WITH INTEGRAL MOLDED CONNECTORS WESTINGHOUSE IS ESTABLISHING PRODUCTION METHODS FOR FLEXIBLE PRINTED CIRCUITS WITH MOLDED CONNECTORS. PROCESSES INCLUDE AN IMPROVED LASER INSULATION STRIPPING TECHNIQUE, AUTOMATED CONNECTOR MOLDING, & LASER WELDED. A UV-CURED RESIN WAS TRIED.		217.0	192.9	50.7	OCT 81 OCT 80
R 79 3280	ENGR ANALYSIS OF MFG PARAMETERS FOR THERMAL BATTERIES **** DELINQUENT STATUS REPORT ****		145.0		SEP 80 JUN 81	
R 79 3287	PRODUCTION METHODS FOR LOW COST STRIP LAMINATE MOTOR CASES CHAPARRAL PRODUCTION COMPONENTS HAVE BEEN FABRICATED AND ARE READY FOR SHIPMENT FOR TEST FIRING. A ROUGH DRAFT FINAL REPORT HAS BEEN PREPARED AND IS CURRENTLY BEING REVIEWED.		250.0	198.8	51.2	APR 80 DEC 80
R 80 3294	PRODUCTION PROCESSES FOR ROTARY ROLL FORMING A PROCUREMENT PACKAGE IS BEING PROCESSED AND THE CONTRACT IS ANTICIPATED TO BE AWARDED BY 31 JULY 1980.		300.0		DEC 81	DEC 81
R 79 3372	MANUFACTURING METHODS FOR MAGNETIC MATERIALS INTERCONNECTION- A CONDUCTING SPHERE IS BEING USED TO REDUCE VOLTAGE GRADIENTS WHILE JOINING. MOLDING EQUIPMENT IS BEING PROCURED TO DEMONSTRATE CONTINUOUS POTTING AND ENCAPSULATION. THE STATUS REPORT IS INCOMPLETE.		610.0	519.7	90.3	OCT 79 SEP 80
R 78 3376	TESTING ELECTRO-OPTICAL COMPONENTS AND SUBSYSTEMS **** DELINQUENT STATUS REPORT ****		375.0	174.3	16.0	DEC 80 JUL 80
R 80 3376	TESTING OF ELECTRO-OPTICAL COMPONENTS AND SUBSYSTEMS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.		300.0			
R 79 3381	LOW COST, IMPROVED 2-D HEAT SHIELDS **** DELINQUENT STATUS REPORT ****		500.0	384.0	MAR 80	DEC 81
R 80 3396	INJECTION MOLDING OF LOW COST-ONE PIECE NOZZLES PROJECT WORK WAS INITIATED. A SPECIFIC NOZZLE WILL BE SELECTED FOR THE PRODUCTION RUN. AFTER THE SELECTION OF THE NOZZLE DESIGN, WORK WILL BE INITIATED IN THE FABRICATION OF THE INJECTION MOLD.		180.0	158.5	JUN 81	JUN 81
R 79 3410	PRODUCTION METHOD FOR HEAT PIPES FOR HYBRID/LSI HUGHES FABRICATED HEAT PIPES FOR HYBRID LSI CIRCUITS. WICK FORMING AND EVALUATION CONTINUES. THERMAL, CHEMICAL, & ELECTRICAL TESTS ON 1ST SET OF HYBRID PACKAGES ARE IN PROGRESS. VACUUM SYSTEM FOR EVACUATION, FILL, AND SEAL WILL BE ESTABLISHED.		250.0	206.9	32.7	SEP 79 JAN 81

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PROJ No.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES-ENT PRO-JECTED COMPLETE DATE
R 80 3411	MFG OF NON PLANAR PRINTED CIRCUIT BOARDS NO PROGRESS WAS REPORTED. THE PROJECT WAS NOT FUNDED UNTIL MARCH.	770.0			FEB 81	FEB 81
R 80 3435	SIMPLIFICATION OF HIGH-POWER THICK FILM HYBRIDS CONTRACT NOT YET AWARDED. PROJECT WILL ESTABLISH PROCESSES FOR SCREENING AND FIRING CONDUCTOR AND RESISTOR INKS ONTO BERYLLIA SUBSTRATES. A LASER TRIM SYSTEM CAPABLE OF SAFELY HANDLING TOXIC BERYLLIA VAPORS WILL BE USED.	350.0			5.0 SEP 83	SEP 83
R 78 3436	DEVELOPMENT OF CERAMIC CIRCUIT BOARDS AND LARGE AREA HYBRIDS BOTH CONTRACTORS RECEIVED CONTRACT EXTENSIONS. THE FOLLOW ON EFFORTS ARE IN THE PROCESS OF BEING REWRITTEN.	325.0	271.8	53.0	DEC 79	JUL 80
R 80 3436	CERAMIC CIRCUIT BOARDS + LARGE AREA HYBRIDS ***** DELINQUENT STATUS REPORT *****	450.0				
R 79 3438	DELIDGING, PARALLEL SEAM SEALED HYBRID MICROELECT PACKAGES WESTINGHOUSE IS JOINT WITH NAVY. SURVEY FAVORS 1" X 2" WELDED METAL PLANAR LEAD HYBRID PACKAGE FOR SEALING. DELIDGING, AND RESEALING WORK PURCHASED SAW BLADE DELIDGING MACHINE HAD HYDRAULIC/PNEUMATIC DRIVE SYSTEM PROBLEM AND WAS RETURNED.	200.0	84.2	99.0	OCT 79	JUL 81
R 78 3440	PRODUCTION TESTING OF CONTROL SYSTEMS FOR GUIDED WEAPONS THE FAB OF THE TEST STAND WAS COMPLETED. THE TEST EQUIP WAS DELIVERED AND INSTALLED. THE CALIBRATION OF THE TEST STAND WAS COMPLETED JUNE 25, 1980.	550.0	490.4		APR 80	NOV 80
R 79 3441	APPLICATION OF HIGH ENERGY LASER MANUFACTURING PROCESSES WELDING TESTS WERE COMPLETED. THE TESTS PROVED THAT FOR WELDING ALUMINUM, THE HEAT TRANSFERRED IS IMPROVED SOMETIMES BY A FACTOR OF TWO OR MORE. THE FINAL REPORT HAS BEEN PREPARED AND IS READY FOR PUBLICATION.	400.0	200.0	200.0	SEP 79	SEP 80
R 79 3444	FULLY ADDITIVE MANUFACTURING FOR PRINTED WIRING BOARDS THERE WAS NO ACCOMPLISHMENT DURING THIS REPORTING PERIOD DUE TO A FIRE AT THE CONTRACTORS FACILITY.	2000.0	120.0	26.0	SEP 79	SEP 80
R 80 3444	FULLY ADDITIVE MANUFACTURING FOR PRINTED WIRING BOARDS ***** DELINQUENT STATUS REPORT *****	200.0				
R 79 3445	PRECISION MACHINING OF OPTICAL COMPONENT ***** DELINQUENT STATUS REPORT *****	300.0	176.9		OCT 81	OCT 81
R 80 3445	PRECISION MACHINING OF OPTICAL COMPONENTS 801***** DELINQUENT STATUS REPORT *****	400.0	1.3			

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R 78 3453	GROUND LASER LOCATOR DESIGNATOR PRODUCTION IMPROVEMENTS ***** DELINQUENT STATUS REPORT *****	211.0			DEC 80	MAR 81
R 78 3454	LO COST - HI VOLUME RADIOGRAPHIC INSPECTION ***** DELINQUENT STATUS. REPORT *****	200.0	147.6	52.4	FEB 80	DEC 80



**ARMAMENT R&D COMMAND  
ARMAMENT MATERIEL READINESS COMMAND  
(ARRADCOM, ARRCOM)  
(AMMUNITION)**

## ARRCOM - ARRADCOM (AMMUNITION)

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING	
			ALLOCATED ( \$ )	EXPENDED ( \$ )	REMAINING ( \$ )	EXPENDED ( \$ )
74	1	901,000	855,000	714,900 ( 83%)	46,000	35,000 ( 76%)
75	4	5,431,400	3,422,900	3,252,600 ( 95%)	2,008,500	1,992,500 ( 99%)
76	13	12,460,400	5,460,700	4,664,700 ( 85%)	6,999,700	6,927,500 ( 98%)
77	2	1,412,000	1,201,000	904,000 ( 75%)	211,000	211,000 (100%)
77	18	11,697,600	7,619,600	4,946,900 ( 64%)	4,078,000	3,760,700 ( 92%)
78	41	19,538,400	10,993,400	7,481,900 ( 68%)	8,545,000	6,955,600 ( 81%)
79	61	28,703,600	14,332,900	4,071,700 ( 28%)	14,370,700	8,393,000 ( 58%)
80	50	28,335,000	7,225,700	1,838,600 ( 25%)	21,109,300	1,444,900 ( 6%)
81	0	0	0	0 ( 0%)	0	0 ( 0%)
82	0	0	0	0 ( 0%)	0	0 ( 0%)
<b>TOTAL</b>	<b>190</b>	<b>108,479,400</b>	<b>51,111,200</b>	<b>27,875,300 ( 54%)</b>	<b>57,368,200</b>	<b>29,720,200 ( 51%)</b>

AUTHORIZED FUNDING CONTRACT ALLOCATED 47%

INHOUSE REMAINING 52%

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5 80 0900	AUTOMATED MULTIPLE FILTER LIFE TESTER THE RFP SCOPE OF WORK WAS PREPARED. THE PROCUREMENT SOLICITATION HAS BEEN DISTRIBUTED TO PROSPECTIVE CONTRACTORS. FURTHER EFFORTS INVOLVING THE EVALUATION OF PROPOSALS AND SUBSEQUENT CONTRACT AWARD ARE PENDING.	252•0	13•0	NOV 81	NOV 81	NOV 81
8 80 0915	GROUP TECH REQUIREMENTS DEFINITION ELECTRONICS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	30•0				
5 80 1001	PILOT LINE FOR FUZE FLUIDIC POWER SUPPLIES A SCOPE OF WORK HAS BEEN SUBMITTED FOR CONTRACTUAL ACTION.	253•0	1•0	OCT 81	OCT 81	OCT 81
5 80 1003	LOW COST MOLDED PACKAGING FOR HYBRID ELECTRONICS CONTRACT NOT YET AWARDED. PROJECT WILL APPLY INJECTION MOLDING, ENCAPSULATION AND SEALING TECHNIQUES USED FOR DUAL-IN-LINE PLASTIC PACKAGES TO LARGER HYBRID CIRCUITS. OBJECTIVE IS SHOCK AND SEALING PROTECTION FOR ELECTRONIC PROXIMITY FUZES.	243•0		MAY 81	NOV 81	
5 80 1005	CERAMIC-METAL SUBSTRATES FOR HYBRID ELECTRONICS CONTRACT NOT YET AWARDED. PROPOSALS ARE BEING EVALUATED. CONTRACTOR WILL ESTABLISH PRODUCTION PROCESSES, RATES AND EQUIPMENT FOR BUILDING THICK FILM HYBRID FUZE CIRCUITS ON PORCELAIN ENAMELED STEEL SUBSTRATES.	319•0	319•0	OCT 81	APR 81	
5 75 1284	IMPROVEMENT + MOD OF INSP AIDS F/DEF + PROT ITEMS THE PROTOTYPE PENETROMETER, DOCUMENTATION AND FINAL REPORT HAVE BEEN RECEIVED. THE PENETROMETER HAS BEEN REWORKED AND TESTED FOR OBTAINING COMPARISON DATA WITH THE NEW PROTOTYPE PENETROMETER. THE FINAL REPORT IS SCHEDULED TO BE COMPLETE IN SEP 1980.	424•0	319•0	90•0	JUN 77	SEP 80
5 77 1295	MODERNIZATION OF CHARCOAL FILTER TEST EQUIPMENT SEE PROJECT 5 79 1295 FOR STATUS.	240•0	175•0	65•0	AUG 78	MAY 80
5 79 1295	MODERNIZATION OF CHARCOAL FILTER TEST EQUIPMENT THE BREADBOARD MODEL WAS COMPLETED AND EVALUATED. IT WAS DETERMINED THAT THE BREADBOARD DESIGN APPROACH IS ACCEPTABLE. THE EQUIPMENT DESIGN DRAWINGS ARE IN THE PROCESS OF BEING REVIEWED. A DRAFT OF THE FINAL REPORT IS BEING REVIEWED.	860•0	3•0	DEC 80	JUN 81	
8 78 1296	MT FOR CB FILTERS SP2 CONTRACT EFFORT ON COMPACTION-BY-VIBRATION PARAMENTS IS COMPLETE. SP3 FILTER PULSE TESTING HAS BEEN TERMINATED. SP4 DUST LEVEL STUDY FOR CHARCOAL HAS BEEN COMPLETED.	654•0	291•8	358•0	MAR 79	DEC 80
5 79 1296	MT FOR CB FILTERS SP2 DESIGN DATA WAS COLLECTED FOR CONCEPT OF SIDE FILLING OF FILTER CELLS. SP3 A CONTRACT SOW WAS PREPARED FOR EVAL RELATIONSHIP BETWEEN FILTER PROCESS CONDITIONS AND FILTER PERFORMANCE CHARACTERISTICS.	400•0	75•0	324•3	MAY 80	MAR 81

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5 80 1296	MANUFACTURING TECHNOLOGY FOR CB FILTERS SP2 STUDY OF SIDE FILLING OF FILTERS INCLUDING INCREMENTAL FILLING WITH VERTICLE VIBRATION. SP3 PACKING DENSITY OF CHARCOAL IN THE FILTER WAS INVESTIGATED AS TO AFFECT ON FILTER PERFORMANCE. COMPRESSION AFFECTS ON DENSITY WAS STUDIED.		404.0	180.0	101.9	MAR 81
5 76 1311	M229 REFIL KIT COMPONENT-CHEMICAL AGENT ALARM DEMO AND ACCEPTANCE RUN OF FAM AND CAM MACHINES AT CTR PLANT INDICATED UNACCEPTABLE RESULTS. CONTRACT WAS TERMINATED FOR DEFAULT AND CTR HAS APPEALED THIS ACTION. FINAL TECH REPORT HAS BEEN INITIATED.		570.0	177.0	370.0	DEC 77 JUL 80
5 77 1312	PAPER, CHEMICAL AGENT DETECTOR #8 SOP FOR OPERATION OF PILOT PAPER FACILITY AT CSL WAS MODIFIED AND APPROVED. ALL SAFETY MODS HAVE MADE TO THE CSL FACILITY TO ALLOW USE OF MUTAGE NIC DYE. CALIBRATION CURVES WERE ESTABLISHED AND RUNS INITIATED USING RETNETION AIDS.		118.0		110.0	MAR 78 SEP 80
5 79 1318	CHEMICAL PRODUCTION FILL, CLOSE AND LAP FOR 8 IN XM736 PROJ ALTERNATIVE PROCESS EVALUATION OF POTENTIAL QL WASTE TREATMENT METHODS WAS COMPLETED. PRE-PILOT SCALE TESTING OF POTENTIAL PROCESSES WAS INITIATED. EMPHASIS WAS ON RECYCLE OF USABLE WASTES TO REDUCE TOTAL QL WASTE STREAMS.		398.0		306.0	MAR 81 DEC 80
5 80 1318	EST CHEMICAL PROD + FILL CLOSE + LAP TECH F/PROJ 811 VX-2 NO FUNDS EXPENDED AND NO PROGRESS REPORTED.		484.0			JUN 81
5 77 1320	PILOT STATIONS FOR FILLING + CLOSING IMPROVED WP MUNITIONS INSTALLATION OF EQUIPMENT ON FILLING LINE WAS COMPLETED. DEBUGGING OF LINE IS IN PROGRESS.		374.0	257.0	118.0	JUL 78 JAN 80
5 78 1320	PILOT STATIONS FOR FILLING + CLOSING IMPROVED WP MUNITIONS INSTALLATION OF LAP EQUIPMENT IS 50 PERCENT COMPLETE.		375.0	47.0	200.0	SEP 79 AUG 80
5 77 1327	IMPROVEMENT AND MODERNIZATION OF GAS MASK LEAKAGE TESTING PROTOTYPES TESTERS WERE MANUFACTURED AND DEMONSTRATED ABILITY TO DETECT LEAKS NEAR THE 0.5CC/MIN REGMT. SEVERAL ALTERNATIVE AEROSOLS WERE EVALUATED. AS A RESULT OF TESTING PROTOTYPES ARE BEING MODIFIED PRIOR TO FINAL RELIABILITY TESTING.		305.0	193.0	83.0	MAR 79 OCT 80
8 78 1335	MFG TECH FOR NEW PROTECTIVE MASK MANUFACTURING PLAN, PLANT LAYOUT, AND DIPEC SEARCH WERE COMPLETED. CONTRACT AWARDED TO MINE SAFETY APPLIANCES ON 30 APR FOR PROCUREMENT. SET-UP OF PRESSES, MOLDS, AND CONTROLS FOR PILOT PLANT.		764.0	544.0	193.4	JUN 79 DEC 80

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5 79 1335	MAN TECH FOR NEW PROTECTIVE MASK PREPARATION, PLANNING AND PROCESS STUDIES WERE INITIATED FOR PILOT PRODUCTION. PROCESS ENGINEER WORK FOR COATING AUTOMATION WAS COMPLETED. STUDIES OF TECHNIQUES FOR AUTOMATED BONDING OF THE TWO PIECE MASK ARE CONTINUING.	672•6	498•4	498•4	OCT 82	DEC 80
5 80 1335	MANUFACTURING TECHNIQUES FOR NEW PROTECTIVE MASK THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	1,504•0	775•6	775•6	DEC 82	DEC 81
8 78 1339	PREPARATION OF B-1 DYE ANALYSIS OF SPRAY DRIED B-1 DYE FOUND PARTICLE SIZE FINER THAN CURRENT SPECS. SAMPLES FROM PROCESS RUNS ARE BEING INVESTIGATED TO IDENTIFY IMPURITIES AND REMOVAL METHODS. FURTHER PILOT RUNS WITH TOBIAS ACID METHOD WILL BE MADE.	501•0	44•0	427•0	JUN 79	SEP 80
8 78 1345	BIOLOGICAL WARNING SYSTEM SRI CONTINUED TESTING OF TAPES. INTER-MARK SYSTEM FOR TAPE MARKING HAS BEEN DEBUGGED. BENDIX HAS COMPLETED AND DELIVERED BREADBOARD DETECTORS. TAPE MANUFACTURING STUDIES WERE IN PROGRESS.	480•0	233•0	209•0	JAN 80	SEP 80
5 79 1345	BIOLOGICAL WARNING SYSTEM DOM FOR CHEMILUMINESCENCE CELL WAS MODIFIED. PROCEDURES FOR INJECTOR PUMP ASSEMBLY DEVELOPED. STUDIES OF COLLECTOR/CONCENTRATOR COMPLETED. LUMINOL PURIFICATION PROCESS VERIFIED. LIQUID TUBING HARDNESSES RECEIVED FROM SILMED.	525•0	229•0	235•0	DEC 80	MAR 81
5 80 1345	BIOLOGICAL WARNING SYSTEM MICROPROCESSOR LOGIC INVESTIGATION INITIATED. LIFTER ARM AND CLIP ASSEMBLY WAS FABRICATED AND OPERATED SUCCESSFULLY.	463•0	85•0	17•0	SEP 82	SEP 82
5 80 1348	SUPER TROPICAL BLEACH A CONTRACT WAS AWARDED TO BATTELLE COLUMBUS LABS FOR AN ECONOMIC STUDY OF THE PROCESSES TO MANUFACTURE SUPER TROPICAL BLEACH.	202•0	28•0	9•0	MAR 81	MAR 81
5 78 1353	SHOKE MIX PROCESS (GLATT) DESIGN OF BULK TRANSFER SYSTEM COMPLETED AND BINDER PROCESS SELECTED AND EVALUATED. FORMULA OPTIMIZATION TESTS BEGAN WITH INSTALLED GLATT EQUIPMENT.	390•6	18•0	143•3	OCT 80	APR 81
5 79 1354	SLUDGE VOLUME REDUCTION AND DISPOSAL PROCESS STUDY MONITORING DATA FOR CENTRAL WASTE TREATMENT INFLOW EVALUATED. DESIGN CRITERIA FOR PRE-CLARIFIER AND EQUALIZATION BASIN TO FWDE PROVIDED. CYANIDE TREATMENT DESIGN PROVIDED TO FWDE. ROTARY VACUUM FILTRATION PILOT EQUIPMENT OPERATED IN INITIAL RUN.	122•0	68•0	SEP 80	DEC 80	

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5 80 1354	SLUDGE VOLUME REDUCTION AND DISPOSAL PROCESS STUDY SLUDGE HANDLING EQUIPMENT WAS TESTED IN A RECOVERY/TRANSFER OPERATION. PRELIMINARY DESIGN DATA FOR SLUDGE DEWATERING WAS PROVIDED FWDE FOR INCLUSION IN MCA-83 PROJECT.	156.0		48.6	DEC 80	SEP 81
5 79 1355	MANUFACTURING PLANT TOXIC EFFLUENT/EMISSION PRETREATMENT CONTINUED IDENTIFICATION OF TOXIC SUBSTANCES AT PEA. A CONTINUOUS BIOMONITORING UNIT WAS INSTALLED TO DETERMINE TOXICITY OF PBA EFFLUENTS.	105.0	52.2	51.7	JAN 81	DEC 80
5 80 1355	MANUFACTURING PLANTS TOXIC EFFLUENT/EMISSION PRETREATMENT PILOT SCALE PLANNING WAS INITIATED FOR CARBON ON ION EXCHANGE TREATMENT OF PBA WASTE. INDUSTRIAL WASTE WATER SAMPLES COLLECTED AND SUBMITTED TO BATTELLE COLUMBUS LABS FOR EVALUATION.	222.0		18.0		
5 80 1400	SPT FOR NORWEGIAN MULTI PURP PROJECTILE THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	450.0				
5 79 1403	IMPROVED PROC/SUBSTITUTION OF NONTOXIC DYES-M18 SMK GRENADES BOTH YELLOW AND GREEN M18 GRENADES WITH SUBSTITUTE CHINOLINE DYE WERE TESTED. FUNCTIONAL SUITABILITY AND SMOKE MIX STABILITY RESULTS WERE GOOD. EXISTING MIXING AND LOADING TECHNOLOGY WAS DETERMINED AS ADEQUATE FOR THE GRENADES.	315.0		115.0	JUN 81	JUN 81
5 79 1903	DIE CAST TAILCONE + DESIGN MACHINE FOR BLU-96/E DIE METAL HAS BEEN RECEIVED. THE DESIGN OF THE ROLLER EQUIPMENT WAS COMPLETED.	450.0	426.0	24.0	APR 80	AUG 80
5 80 1903	DIE CAST TAIL CONE + DESIGN MACHINE FOR BLU-96/B DIE DESIGN HAS BEEN COMPLETED AND MACHINING HAS BEEN STARTED. FABRICATION AND ASSEMBLY OF ROLLER MACHINE UNDERWAY.	1,176.0	1,140.0	10.6	MAR 81	JUN 81
5 79 1905	PBX CONTINUOUS CASTING FOR MUNITIONS LOADING PROCESSES ON FOUR EXPLOSIVE SYSTEMS WERE BASELINED FOR AN ECONOMIC ANALYSIS TO DESIGN A CONTINUOUS PBX PILOT PLANT. A PROCUREMENT PACKAGE WAS DELAYED BUT CONTRACT AWARD EXPECTED IN AUGUST.	250.0		73.9	DEC 80	MAY 81
5 77 3905	PS127 RESERVE POWER SUPPLY MFG FOR THE XM587 FUZE CONTRACTOR COMPLETED ASSEMBLY OF MATRIX BATTERIES. DOCUMENTATION IN THE FORM OF THE FINAL REPORT DRAFT IS EXPECTED 1 JULY 80. FINAL REPORT TO BE ISSUED BY END OF AUGUST.	375.0	300.0	75.0	NOV 78	AUG 80
5 78 3907	MNOS COUNTER-MEMORY CIRCUIT FOR FUZES NITRON COMPLETED THE TECHNICAL PHASES OF THE CONTRACT BUT IS LATE WITH THE MANUF METHODS NOTEBOOK AND TECHNICAL REPORT. 5600 SAMPLE MNOS TIMER CIRCUITS WERE DELIVERED TO HOL FOR THE XM587 FUZE. NITRON PACKAGED MNOS CHIPS IN PLASTIC DIP PACKAGES.	300.0	273.6	22.5	SEP 79	SEP 80

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			VALUES (\$000)	MATERIAL VALUES (\$000)			
5 79 3913	MECHANICAL JOINING OF MINIATURIZED ELECTRONIC COMPONENTS HDL LASER WELDED DIAPHRAMS TO FILLED BATTERY CUPS BUT POOR WELDS ALLOWED INTERNAL LEAKING. WELDING FIXTURE WAS MODIFIED. SURFACES OF THE PARTS ARE BEING CHANGED. GOOD BATTERIES WILL BE SUBJECTED TO FAILURE ANALYSIS.		89.0	60.4	18.0	DEC 79	SEP 80
5 79 3960	PROTOTYPE PDN EQUIP FOR PRINTED CIRCUIT BOARDS COMPUTER-VISION CORP WON THE CONTRACT FOR THE PHOTOPLOTTER BUT WILL NOT DELIVER UNTIL APRIL 81. FINAL REPORT WILL BE STARTED PRIOR TO DELIVERY. ROTARY ETCHER WAS INSTALLED AND IS IN USE. HDL IS TRYING TO PROVE OUT TECH DATA PACKAGE PRIOR TO CONTRACT.		405.0	182.0	82.7	DEC 79	SEP 81
5 79 3961	IMPROVED 3-D VIBRATION ACCEPTANCE TEST FOR ART FUZES AND SPECIFICATIONS FOR THE SHAKER SYSTEM WERE DEVELOPED AND PROCUREMENT OF TWO LING SYSTEMS INITIATED. A FINITE ELEMENT MODEL OF THE TEST PLATFORM WAS DEVELOPED A DRAFT TDP WAS PREPARED.		282.0	192.0	56.0	SEP 81	DEC 80
5 80 3961	IMPR (3-D) VIB ACCEPT TSTNG F ART FUZES AND S/A MECHANISMS. SEE PROJECT 5 79 3961 FOR PHASE I WORK. A FUNDING DECREASE IS CAUSING SCHEDULING PROBLEMS. GOOD TECHNICAL PROGRESS IS BEING MADE.		352.0	282.0		SEP 82	SEP 82
5 77 4000	AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT IN LATE JULY 79, A CONTRACT WAS AWARDED TO ALLEGANY BALLISTICS LABORATORY FOR A HAZARDS ANALYSIS OF THE MULTI-TOOL LOADER. THE ANALYSIS IS STILL IN PROGRESS.		1,000.0	444.2	553.4	FEB 80	SEP 80
5 78 4000	AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT PRESENT EFFORTS CENTER ABOUT DESIGNING AND FABRICATING FUNNELS/HOPPERS WHICH CAN DIRECT AND CATCH THE CUPS AFTER INSPECTION WITHOUT DAMAGING THEM. MRC REPORTED A COST OVERRUN. AN ADDITIONAL \$300K WILL BE REQUIRED TO COMPLETE THE PROGRAM.		1,250.0	813.9	427.0	DEC 79	SEP 80
5 79 4000	AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT AN AUTOMATIC DETONATOR CLEANING STATION WAS FABRICATED AND PARTIALLY TESTED. INERT DETONATORS WERE COATED WITH GRAPHITE PRIOR TO TESTING. A PROGRAMMABLE CONTROLLER WAS PURCHASED. ACCURACY TEST RESULTS OF THE CHAMLEE AND BALL LOADERS WERE RELEASED.		1,600.0	396.4	701.7	MAR 81	DEC 80
5 80 4000	AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT LIAISON WITH CONTRACTORS AND LOAD PLANTS IS BEING MAINTAINED ON TASKS BEING CONDUCTED WITH PRIOR YEAR FUNDS.				250.0	26.7	MAR 81
5 79 4024	DSN DEV BLD PROT COMP AND AUTO ASSY MACH M223 FZ PROCUREMENT RECEIVED THE SCOPE OF WORK AND SUPPORTING DOCUMENTS AND A SOLICITATION WAS MADE. BIDS WERE RECEIVED AND EVALUATED. A CONTRACT WAS AWARDED TO INNOVA, INC. DETAIL DESIGNS WERE STARTED.		1,132.0	945.1	32.8	SEP 81	OCT 81

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5 80 4033	CAUSTIC RECOVERY FROM SODIUM NITRATE SLUDGE SLUDGE SAMPLE FROM HOLSTON AAP WAS ANALYZED AND CHARACTERIZED. SURVEY FOUND OFF-THE-SHELF INCINERATOR NOT AVAILABLE. FURNACE LINER MATERIALS ARE BEING REVIEWED TO ESTABLISH DESIGN CRITERIA FOR PILOT PLANT.	150.0		58.8	JAN 81	JAN 81
5 80 4037	PROCESS IMPROVEMENT FOR PLASTIC-BONDED EXPLOSIVES PROJECT TO INVESTIGATE PRESENT PROCESSES FOR COATING, DRYING AND FINISHING PBX AT HOLSTON AAP IS DELAYED IN AWARD PHASE. FUTURE YEAR EFFORTS ARE BEING COMBINED WITH 4449.	236.0		19.0	DEC 81	DEC 81
5 78 4041	AUTO EQUIP FOR ASSY OF MORTAR COMPONENTS PROVEOUT OF LOW-POROSITY CONTAINERS WAS PERFORMED. STATION MODIFICATIONS NEARLY COMPLETE AND PRODUCTION TOOLING BEING ORDERED. LINE OPERATES TO SCREEN OUT-OF-SIZE M204 CONTAINERS. GAGES TO BE REDESIGNED TO MATCH PROD SPECS. VENDOR TEST GY 31 JUL 80.	867.0	673.0	172.0	JUL 79	SEP 80
5 79 4046	QUANTITATIVE ANAL. OF BLENDED EXPLOS. SAMPLES UPDATED PRIORITY LISTING OF EXPLOSIVES TO BE ANALYZED PREPARED. TECH REPORT DESCRIBING RAPID CHEM ANAL OF NOL-130 PRIMER MIX PUBLISHED. SAME BEING PREPARED FOR PA-100 AT ARRADCOM. LONE STAR AAP REC'D POLAROGRAPH IN MAY AND USED FOR RAPID CHEM ANAL.	307.0	70.0	136.3	NOV 80	DEC 80
5 75 4050	AUTOMATED LOADING OF PROPELLANT FLASH REDUCERS DEFICIENCIES OF LOADER UNDER EVALUATION AT INDIANA AAP FOR DISPOSITION OF EQUIPMENT. DESIGN AND FABRICATION CONTRACT WITH FMC BEING CLOSED OUT.	1,067.4	847.9	218.5	MAR 76	SEP 80
5 79 4059	OPTIMIZATION - NITROGUANIDINE IN M30 PROPELLANT TWO NG PARTICLE SIZE MONITORS, ONE FOR THE CRYSTALLIZER SLURRY AND ONE FOR THE FINAL PRODUCT ARE BEING MODIFIED FOR INSTALLATION IN NSE. PRELIMINARY OPERATION, SERVICING AND HAZARDS ANALYSIS WERE ACCOMPLISHED.	250.0	225.0	16.0	MAR 81	DEC 80
5 80 4061	NITROGUANIDINE PROCESS OPTIMIZATION REVIEW OF PROCESS PARAMETERS AND PREPARATION OF THE TEST PLAN WAS INITIATED.	260.0	189.0	20.0	MAY 81	MAY 81
5 79 4062	AUTO MFG SYSTEM FOR MORTAR INCREMENT CONTAINERS THIS PROJECT HAS BEEN RESTRUCTURED TO DEVELOP PRODUCTION PROCESSES FOR THE 60/81MM M204/M205 INCREMENT CONTAINERS USING BOTH VACUUM SLURRY FELTING AND PAPER MOLDING METHODS. SOLICITATIONS WERE RELEASED FOR SLURRY PROCESS, MOLDING PROCESS AND ASSY.	507.0	11.0	131.0	AFR 82	JUL 83

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PROJ No.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES- ENT PROJECTED COMPLETE DATE
5 80 4062	AUTO MANUFACTURE SYS F/MORTAR INCREMENT CONTAINERS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	884.0				
5 79 4064	AUTO LAP OPERATIONS FOR 105MM TANK CARTRIDGES DESIGN LAYOUTS HAVE BEEN PREPARED. THE CONCEPT FOR AN ACCEPTABLE PRODUCTION LINE HAS BEEN DEFINED. RAM ANALYSIS AND PRELIM HAZARD ANALYSIS HAVE BEEN COMPLETED. MODEL HARDWARE IS BEING FABRICATED FOR SELECTED PROCESS AREAS.	1,262.0	919.7	133.6	SEP 80	SEP 80
5 79 4084	OPACITY/MASS EMISSION CORRELATION PLANT VISITS WERE MADE TO RED LION AND CHAMBERLAIN TO OBTAIN INFORMATION AND DEFINE THE PROCESS FACTORS FOR USE IN APPLYING THE CORRELATION.	121.0	92.5	28.5	JUN 81	JUN 81
5 80 4084	OPACITY/MASS EMISSION CORRELATION CONFIRMATORY TESTING OF FORGING OPERATIONS BEGUN AT RED LION.	111.0	15.0	17.9	JUN 81	JUN 81
5 76 4114	METHODS TO MINIMIZE ENVIRONMENTAL CONTAMINATION SEE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS. 5764114.	5,373.9	1,637.0	3,758.1	JAN 81	JAN 81
5 76 4114 F01	IDENT + CONTROL OF POLLUTION - PRESENT REQMTS ENVIRONMENTAL AND POLLUTION INPUTS MADE TO 105MM M1 PROJECTILE AND XM1 TANK AMMO STUDIES. POLLUTION DISCHARGE REVIEWS HELD AT NATL PRESTO AND MISS AAP. WASTE H2O INVENTORY OF M155 AAP PREPARED. AMRON WASTE H2O TREATMENT CENTER RECD AND EVAL. 5774114	59.0		59.0		JUN 80
5 76 4114 F02	CONTROL OF POLLUTION GENERATED BY SURFACE TREAT LINES AUTO SENSING & REPLENISHMENT SYSTEM FOR SURFACE TREATMENT LINE INSTALLED AT SCRANTON AAP. CONTRACT SIGNED FOR PILOT POLL ABATEMENT SYS AT SAAP. COUNTERCURRENT RINSE SYSTEM FOR LAAP CONSTRUCTED. ALSO SCOPE OF WORK FOR POLL ABATEMENT AT LAAP 5754114.	293.4	118.0	122.5		JUN 80
5 76 4114 F03	REMOVAL OF SOLID WASTES FROM METAL PARTS MFG PROCESSES SCOPE OF WORK WRITTEN FOR DETERMINATION OF DISPOSAL TECHNIQUES FOR OIL, SHOT DUST, FERROUS SCRAP, CU SCRAP AND INDUSTRIAL SOLID WASTE. A SIXTH TASK WAS FEASIBILITY OF COMPACTING SOLID WASTE TO REDUCE VOLUME. CONTRACT AWARDED. FINAL RPT WRTN 5754114.		34.2			JUN 80
5 76 4114 F06	LUBRICATION POLLUTION PROBLEMS P-15 WRITTEN FOR CONSTRUCTION OF SYSTEM TO ABATE OILY WASTE POLLUTION AT SCRANTON AAP. CONTRACT AWARDED TO SURVEY TWIN CITIES AND RIVERBANK AAP TO DETERMINE PARAMETERS FOR OIL POLLUTION ABATEMENT EQUIPMENT. FINAL REPORT RECEIVED & REVIEWED. 5754114.	65.0	39.0	26.0		JUN 80

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5 76 4114 F08	POLLUTION ABATEMENT FROM PLATING OPERATIONS WASTE TREATMENT AND METAL RECOVERY METHODS FOR ALL HARDCOAT & CHROMATING OPERATIONS RESEARCHED AND EVALUATED. STUDY BEGUN TO DETERMINE PRACTICALITY OF EVAPORATION, PRECIPITATION METHODS, REVERSE OSMOSIS AND ULTRAFILTRATION. CONTRACT AWARDED. 5754114.	73•8	18•3	55•5	JUN 80	
5 76 4114 F10	PYROTECHNIC WASTE DISPOSAL CONCEPT STUDY REPORTS RECEIVED & REVIEWED FOR TREATMENT & DISPOSAL OF PYROTECHNIC WASTES. DEACTIVATION FURNACE INSTALLED AT LAKE CITY AAP. IT HAS BAG HOUSE FILTER THAT COLLECTS 99% OF PARTICULATE EMISSIONS. EQUIPMENT ACCEPTED FOR PRDN USES 575 4114.	39•0		39•0	JUN 80	
5 76 4114 F12	POLLUTION CONTROL FOR SCAMP FINAL REPORT DETERMINED PRACTICALITY OF UTILIZING REVERSE OSMOSIS AND ULTRAFILTRATION EQUIPMENT TO PROCESS DRAW LUBRICANTS AND CLEANING WASTE FROM THE SCAMP HIGH SPEED PRODUCTION EQUIPMENT. DESIGN OF SCAMP POLLUTION ABATEMENT SYS FINALIZED. 5774114	100•0	75•0	25•0	JUN 80	
5 76 4114 F13	MONITOR + CONTROL OF POLLUTANTS THREE MAJOR SYSTEMS WERE EVALUATED FOR USE IN AAPS TO AUTOMATICALLY MONITOR H2O EMISSIONS. SPECTROPHOTOMETER AND PRE-PACKAGED CHEMICALS FROM HACH CHEM CO. IS MOST PRACTICAL. TWO PIECES OF EQUIPMENT PURCHASED TO MONITOR AIR PAINT/OIL FRG EMISSIONS) 5754114	201•0		201•0	JUN 80	
5 76 4114 F14	ELIM OF AIR POLLUTION FROM METAL PARTS MFG CONTRACT AWARDED TO STUDY MOD OF PRESS LINE VENTILATING SYSTEM TO CAPTURE LUBE EMISSIONS. BRINK MIST ELIMINATOR TEST UNIT INSTALLED. PAINT SPRAY EMISSION CONTROL TESTING SCHEDULED AT LOUISIANA -AAP. ABSORPTION RECHARGEABLE CANNISTERS PLANNED. 5754114.	25•0		25•0	JUN 80	
5 76 4114 F15	DISPOSAL OF MERCURY FROM STRESS CRACK TESTS CONTRACT AWARDED FOR PYROLYSIS SYSTEM AT LAKE CITY AAP. LAB ANG ENRG STUDIES COMPLETED FOR REMOVAL OF HG FROM LIVE AMMO. WASTE TREATMENT METHODS EXPLORER & CANDIDATES EXPLORED. HG IN H2O PILOT LINE DESIGNED, TESTED AND DEBUGGED AT LAKE CITY. 5754114.	116•0	116•0		JUN 80	
5 76 4114 F16	WATER BASED FORGING LUBRICANTS CONTRACTS PLACED TO CONDUCT FORGING TESTS USING H2O-BASED LUBES AT NATL PRESTO, SCRANTON AAP AND RIVERBANK AAP. INITIAL TESTING WITH GULF AND WESTERN AND ACHESON H2O-BASED LUBES GAVE OPTIMISTIC RESULTS. CONTRACT PLACED FOR SPRAY APPLN SYSTEM. 5754114	75•0		75•0	JUN 80	
5 76 4114 P01	PROGRAM CONTROL, COORDINATION AND SUPPORT CONTINUOUS COORDINATION AND LIAISON WAS MAINTAINED WITH ALL COMMAND ACTIVITIES AS WELL AS OTHER GOVERNMENT AGENCIES ON PROGRAMS TO CONTROL ENVIRONMENTAL POLLUTION. A FINAL TECH REPORT FOR FY77 HAS BEEN COMPLETED.	261•1		261•1	JUN 80	

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5 76 4114 P04	NO-X ABATEMENT METHODS P04 AND P033 COMBINED HERE. MOLECULAR SIEVE WORK COMPLETE. INSTALLATION OF NOX ABATEMENT EQUIPMENT ON THE C-TNT RAAP PRODUCTION LINE COMPLETED.		474•3	402•0	72•3	DEC 80
5 76 4114 P06	PROPELLANT AND EXPLOSIVE WASTE INCINERATION ARRADCOM VERTICAL INCINERATOR CONVERTED TO FLUIDIZED BED INCINERATOR. AT RAAP PERFORMED A SERIES OF TEST BURNS IN THE 250 LB/HR ROTARY KILN INCINERATOR TO TEST EFFECTIVENESS OF H2O SOLUBLE NI OXIDE CATALYST TO REDUCE NOX EMISSIONS. 5754114.		368•8	35•9	308•9	DEC 79
5 76 4114 P07	ELIMINATION OF NITRATE WASTES ALL WORK COMPLETED. FINAL REPORT PREPARED AND SUBMITTED FOR REVISION. WILL PROVIDE DESIGN CRITERIA AND MODERNIZATION/MCA PROJECT. 5754114.		34•0	34•0	JUN 80	
5 76 4114 P08	DISPOSAL OF RED WATER FROM TNT PURIFICATION EVALUATION OF PH 3 FURNACE MOD TESTS FOR ENGRG STUDY COMPLETED. VARIOUS TRIPS MADE TO STUDY POSSIBLE APPLICATION OF COMMERCIAL PROCESSES TO RED H2O DISPOSAL. 5754114.		250•0	230•0	20•0	DEC 79
5 76 4114 P10	DISPOSAL OF WASTES FROM PROPELLANT MFG PILOT PLANT MOTHER LIQUOR TREATED THROUGH THE PLATE AND FRAME UF YIELDED 4•5PCT COLLAGEN CONCENTRATE. THE RO CONCENTRATED FILTRATE TO 8•5PCT NA250•. ABCOR SPIRAL WOUND UF UNIT OPERATIONAL AND UNDERGOING TESTING. FINAL REPORT BEING WRITTEN.		231•8	50•6	91•2	NOV 80
5 76 4114 P12	ELIMINATION OF ORGANIC WASTES SUCH AS SOLVENT REPORT PREPARED OUTLINING TWO PROPOSED METHODS FOR SOLVENT DISPOSAL BASED ON LAB STUDY. ONE IS FRACTIONAL EXTRACTION OF DESORBED CONDENSATE. OTHER IS INCINERATION & RECOVERY OF THERMAL ENERGY AS STEAM.		80•0	35•0	45•0	DEC 80
5 76 4114 P16	PROCESS WATER MANAGEMENT AT GOCO PLANTS WORK ON THIS SUB-TASK HAS NOW BEEN COMPLETED. PROJECT CLOSE-OUT REPORTS HAVE BEEN WRITTEN. THIS IS THE LAST SEMI-ANNUAL REPORT.		489•2	45•8	443•4	JUN 80
5 76 4114 P19	METHODS + EQPT TO MONITOR AND CONTROL POLLUTANTS MILESTONES REVISED TO REFLECT A 6 MON DELAY FROM SUPPLIER. EVAL OF TOTAL C AND SULFIDE MONITORS COMPLETED. COMPLETION OF XONICS NG VAPOR MONITOR DELAYED TO NOV 80. NOX CONTROL SYSTEM INSTALLED. PROJECT WILL BE COMPLETED BY DEC 80.		416•2	234•7	169•5	DEC 80
5 76 4114 P26	SO-X ABATEMENT METHODS A STATE-OF-THE-ART REPORT DESCRIBING SEVERAL SOX ABATEMENT PROCESSES. INCLUDING APPLICATIONS AND COSTS WAS COMPLETED AND DISTRIBUTED. 5774114.		29•9	29•9	JUN 80	

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5 76 4114 P27	SOLID WASTE SOIL DISPOSAL TECHNIQUES MILESTONES REVISED TO REFLECT DELAYS IN OBTAINING EQUIPMENT FOR TOXICITY STUDIES. SEED GERMINATION AND PLANT GROWTH TOXICITY STUDIES COMPLETE. NO ADVERSE EFFECTS INDICATED. AMES TEST FOR MUTAGENICITY UNDERWAY. ANIMAL AND FISH TOXICITY STUDIES STARTED	216•8	204•5	204•5	NOV 80	
5 76 4114 P33	REMOVAL OF NO-X AND TNM FROM NITRATION FUMES P04 AND P033 COMBINED IN FUNDING. INSTALLATION COMPLETED APRIL 1980. OPERATING PROCEDURES ARE BEING WRITTEN. RECAUSE THE TNT LINE WILL NOT RUN UNTIL 1981. PROJECT WILL END IN DEC 1980.	474•3	402•0	72•3	DEC 80	
5 76 4114 P34	OXIDATION OF NITROBODIES FEASIBILITY INVESTIGATIONS OF THE ELECTROCHEMICAL/COAGULATION AND THE WHITE OIL SOLVENT EXTRACTION PROCESSES HAVE DEMONSTRATED THE EFFECTIVENESS OF THESE METHODS TO TREAT PINK WASTEWATER THROUGH DESTRUCTION AND REMOVAL OF TNT NITROBODIES. 5774114	170•4	11•5	158•9	JUN 80	
5 76 4122	PRODUCTION LINE MODERNIZATION FOR CBU WEAPONS ***** DELINQUENT STATUS REPORT *****	721•0	128•0	574•3	MAR 77	DEC 80
5 79 4124	FABRICATION OF CONTROL ACTUATION SYSTEM HOUSINGS THIS PROJECT IS UNDER CONTRACT TO CHANDLER-EVANS. PRELIMINARY CYCLE STUDIES HAVE BEEN EVALUATED AND ARE NEARING COMPLETION. MACHINED HOUSINGS WERE SENT TO KEARNEY AND TRECKER FOR INITIAL FEASIBILITY STUDIES.	930•0	786•2	41•1	JUN 80	SEP 81
5 75 4136	DEVELOPMENT OF A GENERALIZED MATH MODEL ***** DELINQUENT STATUS REPORT *****	180•0	180•0	180•0	JAN 76	DEC 80
5 76 4136	DEVELOPMENT OF A GENERALIZED MATH MODEL ***** DELINQUENT STATUS REPORT *****	150•0	21•5	128•5	JUN 77	DEC 80
5 79 4137	AUTOMATED LOADING OF CENTER CORE IGNITERS FEASIBILITY STUDY WAS CONDUCTED WITH CONCEPTS FROM BOTH ARRADCOM AND INDIANA AAP. A TECHNICAL REPORT IS UNDER PREPARATION FOR AN ENGINEERING EVALUATION OF ALTERNATIVES.	250•0	91•0	104•4	OCT 79	JUN 80
5 80 4137	AUTOMATED LOADING OF CENTER CORE IGNITERS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	67•0				
5 79 4139	APPL OF RADAR TO BALLIST ACC TEST OF AMMO-ARBAT THIS PROGRAM HAS BEEN COMPLETED AS ORIGINALLY PLANNED. FY79 FUNDS HAVE BEEN EXPENDED. ADDITIONAL TESTING IS PLANNED AND IS CONTINGENT UPON RECEIVING ADDITIONAL FY78 AND FY79 FUNDING.	265•0	236•8	28•2	SEP 75	MAY 81

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5 78 4143	MFG OF CANISTERS AND COMP F/M259 + M264 ROCKETS BASED ON TEST RESULTS. THE CONTRACTOR WAS ASKED TO MAKE MODIFICATIONS TO THE SUBMITTED CONFIGURATIONS TO INCORPORATE THE BEST QUALITIES INTO A SINGLE CANDIDATE DESIGN. SAMPLES OF THE MODIFIED CONFIGURATION WERE SUCCESSFULLY TESTED IN-HOUSE.	160.0	82•2	55•0	MAR 80	SEP 80
5 74 4147	COMPUTER CONTROL APPLICATION TO CONTINUOUS TNT MANUFACTURE ELECTRONIC ANALOG CONTROL SYSTEM WAS INSTALLED ON TNT LINE C AT RADFORD AAP. FUNCTIONAL CHECKS WERE COMPLETED TO ESTABLISH CORRECTNESS OF WIRING. WORK COMPLETED ON IMPROVING ENVIRONMENT (SEALED FLOORS AND INSTALLED AIR COND) OF REMOTE CONTROL ROOM	901.0	855•0	35•0	NOV 75	DEC 80
5 78 4149	LOADING OF 30MM ADEN/DEFA HEDP AMMUNITION PROCESS FOR PROJECTILE FABRICATION WAS TESTED AND ADOPTED. HOT FORGING OF SHAPE CHARGE LINER PROVED FEASIBLE. CONTRACT MOD IN PROCESS WITH HONEYWELL TO FINISH DIE. PARAMETERS FOR CHARGE PRESSING WERE SET. PROJECT SUSPENDED FOR REVIEW OF R&D IN-BORE.	500.0	405•7	79•3	MAY 79	FEB 81
5 78 4150	NEW MANUFACTURING PROCESSES FOR SAWS AMMUNITION KINEFAC CORPORATION DELIVERED 5000 ROLL FORMED PENETRATORS FOR ANALYSIS. WATERBURY-FERREL MADE A PARTIAL DELIVERY OF 1500 COLD HEADED PENETRATORS. THE REMAINDER ARE EXPECTED IN AUGUST. LCAAP IS EXPERIENCING DELAYS FOR VARIOUS REASONS.	61.4	7•1	30•5	JUN 80	JUN 81
5 79 4150	NEW MANUFACTURING PROCESSES FOR SMALL CALIBER PENETRATORS A SCOPE OF WORK FOR THE PROTOTYPE EVALUATION OF THE HYBRID CORE AND BULLET ASSEMBLY PROCESS WAS COMPLETED. FINAL APPROVAL OF THE LCAAP EFFORT IS AWAITING A COMPLETE COST ESTIMATE. A SHOULD COST STUDY IS CAUSING THE DELAY.	376•0	220•0	86•8	MAR 81	MAR 81
5 80 4150	NEW MANUFACTURING PROCESSES FOR SAWs AMMUNITION SCOPES OF WORK HAVE BEEN PREPARED FOR THE 4 TASKS. THE SKEWED AXIS ROLL FORMING TASK MUST BE READVERTISED. THE COLD HEADING PROPOSALS ARE BEING EVALUATED.	489•0			JUN 82	JUN 82
5 78 4153	INERTIA WELDER FOR THE M509 AND M483 PROJECTILES WELDMENTS HAVE BEEN METALLURGICALLY ANALYZED FOR CORRELATION WITH ULTRASONICS. PRELIMINARY INFORMATION ON CLEANLINESS REQUIRED FOR BANDS AND BODIES HAS BEEN OBTAINED. ULTRASONIC STANDARDS ARE BEING ESTABLISHED FROM THE BALLISTIC TESTS.	350.0	225•0	9•8	AUG 80	NOV 80
5 79 4163	CONTROLLED PROD LOADING SYS F/105MM HEAT-T M456A1 STATIC SPIN TESTS OF LOADED M456 PROJECTILES INDICATED UNIFORM CAST LOADING. EQUIPMENT FOR THE MILAN PROTOTYPE LINE AND PLANNED DESIGNS WERE REVIEWED.	661.4	262•7	381•0	DEC 79	SEP 80

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5 79 4189	HIGH FRAGMENTATION STEEL PRODUCTION PROCESS STEEL HAS BEEN RECEIVED. METALLURGICAL CHARACTERIZATION IS IN PROGRESS.	633.0	375.0	243.7	JUN 80	AUG 80
5 80 4189	HIGH FRAGMENTATION STEEL PRODUCTION PROCESS INTERPRETATION PROBLEMS WITH SOW HAS CAUSED SLIPPAGE. SOW HAS BEEN FORWARDED TO CONTRACTOR FOR HIS PROPOSAL.	1,048.0		16.3	JAN 81	APR 81
5 79 4194	IMPROVED PROCESS F/PRESSING LX-14 EXPL CHARGES LX-14 EXPLOSIVES HAS BEEN RECEIVED AND PRESSES ARE NOW OPERATIONAL. MODIFICATIONS TO PRESSES AND BUILDINGS HAVE BEEN COMPLETED.	327.0	20.0	67.0	JAN 81	MAY 81
5 80 4200	TNT CRYSTALLIZER FOR LARGE CALIBER MUNITIONS A SCOPE OF WORK WAS PREPARED TO PERFORM A HAZARD ANALYSIS, A CONCEPT DESIGN, DETAIL DRAWING PACKAGE FOR A NEW TNT CRYSTALLIZER SYSTEM BEFORE THE FUNDS WERE WITHDRAWN. A SYSTEM EVALUATION WAS ALSO INITIATED.	29.0		26.1	FEB 81	FEB 81
5 80 4210	DRY CUTTING OF ENERGETIC MATERIALS THIS PROJECT IS SCHEDULED TO START AS SOON AS THE GOCO CONTRACTOR RECEIVES FUNDING AUTHORITY. THE DELAY WAS CAUSED BY RESCHEDULING OF FY80 FUNDS OVER FY80 AND FY81.	450.0		11.0	MAY 82	MAY 82
5 77 4211	MOD OF PROCESS CONTROL OF EXPLOSIVE COMPOSITIONS THE NUCLEAR GAUGE FOR PROCESS MONITOR OF RDX/TNT COMPS HAS BEEN INSTALLED IN THE MELT POUR PILOT PLANT. SOP FOR TEST AND PROVE-OUT HAS BEEN PREPARED. PROTOTYPE IMPACT TESTER HAS BEEN DEMONSTRATED IN THE MANUAL MODE.	427.0	124.3	204.0	AUG 78	DEC 80
5 78 4214	POLLUTION ENGINEERING FOR 1983-85 REQUIREMENTS PROJECT 5XX214 IS AN ORDERLY TRANSITION OF PROJECT 5XX4114 POLLUTION ABATEMENT METHODS FOR P AND E AND IS DIRECTED TO MEETING FUTURE STANDARDS. REFER TO THE FOUR INDIVIDUAL TASKS FOR FURTHER DETAILS OF WORK STATUS.	1,180.0	516.5	651.7	SEP 79	OCT 80
5 78 4214 P1	TECHNOLOGY REQUIREMENTS ARRADCOM COORDINATING "CHEMICAL ASSESSMENT PROGRAM" AT IOWA AAP WITH CONTRACTOR. EXPLOSIVE STANDARDS ARE CURRENTLY BEING ACQUIRED TO COMPILE LIBRARY OF REFERENCE GAS CHROMATOGRAPH SPECTRA CURVES. REVIEW OF MOD/MCA PROJECTS MADE WITH OMNIBUS FUNDING.	211.7		203.1	SEP 79	AUG 80
5 78 4214 P2	IN-PLANT REUSE OF POLLUTION ABATED WATERS FINAL REPORT ON ALL PHASES OF THE HEXAMINE RECYCLE PILOT STUDY AT CSL HAS BEEN RECEIVED BY ARRADCOM FOR REVIEW. ALSO FINAL REPORT RECEIVED FROM HOLSTON AAP. IT RECOMMENDS REPLACEMENT OF DUST SCRUBBERS WITH NEW HIGH-EFFICIENCY SCRUBBERS.	377.0	130.3	245.4	JUL 79	AUG 80

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5 78 4214 P3	LOW COST SYSTEM TO ABATE NITROBODY POLLUTION FINAL REPORTS FOR PH1 (UV/OZONE), PH2 (WHITE OIL SOLVENT EXTRACTION) AND PH4 (SURFACTANT TECHNOLOGY) ARE BEING PREPARED. PH3 (ELECTROCHEMICAL OXIDATION) HAS BEEN DELETED FROM THIS TASK.	355.0	235.9	119.1	JUL 79	SEP 80
5 78 4214 P4	NG-NITRATE ESTER REMOVAL BY ABSORPTION/RECYCLE ADDITIONAL ADSORPTION TESTS WITH XAD-4 RESIN AND NG WASTEWATER WERE COMPLETED IN ORDER TO SIZE EQUIPMENT BEING PROCURED FOR THE PILOT PLANT.	236.0	150.0	86.0	JUL 78	OCT 80
5 79 4214	POLLUTION ENGINEERING FOR 1983-85 REQUIREMENTS PROJECT 5XX4214 IS AN ORDERLY TRANSITION OF PROJECT 5XX4114 POLLUTION ABATEMENT METHODS FOR P AND E AND IS DIRECTED TO MEETING FUTURE STANDARDS. REFER TO INDIVIDUAL TASKS FOR ANY CHANGES AND/OR ADDITIONAL INFORMATION PERTINENT TO THE PROJECT.	1,269.0	553.0	580.0	SEP 80	NOV 81
5 79 4214 P1	TECHNOLOGY REQUIREMENTS IMPLEMENTED EVALUATION OF RECOVERY SYSTEM FOR ACETONE/ETHANOL VAPORS. COMMENCED CALIBRATION OF NO/NOX ANALYZER. PREMIXED CALIBRATED TEST GAS MIXTURES ARE BEING PROCURED TO TEST THE ADEQUACY OF MIXING OF GASES IN THE APPARATUS.	367.0	142.0	201.0	SEP 75	NOV 81
5 79 4214 P2	IN-PLANT REUSE OF POLLUTION ABATED WATERS CONTRACT AWARDED AT BADGER AAP TO STUDY ETHYL ACETATE RECOVERY & REUSE FROM WASTEWATER. AT KANSAS AAP 3 AREAS IDENTIFIED FOR PRACTICAL RECYCLE-REUSE OF POLLUTION ABATED WATERS. AT RADFORD AAP PILOT BIO-DISC TREATMENT INSTALLED. VOL AAP STARTS STUDY.	449.0	296.0	153.0	JUL 80	NOV 80
5 79 4214 P3	LOW COST SYSTEM TO ABATE NITROBODY POLLUTION EVALUATION OF THE UV/OZONOLYSIS FOR THE ABATEMENT OF RDX CONTAINING WASTEWATERS HAS BEEN COMPLETED AT THE KANSAS AAP. THIS PHS OF THIS MULTIFYEAR TASK. A DRAFT FINAL REPORT HAS BEEN PREPARED AND SENT TO ARRADCOM FOR REVIEW.	325.0	45.0	167.3	MAR 80	JUL 81
5 79 4214 P4	NG-NITRATE ESTER REMOVAL BY ABSORPTION/RECYCLE PILOT PLANT DESIGN AND EQUIPMENT HAS BEEN STARTED. THE BASIC COLUMN FOR NG ADSORPTION WILL BE 4IN ID X 24IN L.	128.0	70.0	58.0	SEP 20	MAY 81
5 77 4223	APPLICATION OF ULTRASONIC ENERGY TO DOUBLE-BASE PROPELLANT An ULTRASONICALLY ACTIVATED DIE FOR A 15-IN PRESS WAS DESIGNED AND EVALUATED WITH N-5 PROPELLANT FOR 2.75 IN GRAINS. EXP IMPRUVMTS IN EXTRUSION WERE NOT OBTAINED. FIRE OCCURRED IN EXTRUDER ON 25 MAR DURING AN EQUIPMENT CHECK. REDDESIGN WILL BE REQUIRED	363.0	59.4	289.2	SEP 78	SEP 80

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5 79 4225	RED WATER POLLUTION ABATEMENT SYSTEM ANALYSIS OF PRODUCT SAMPLES FROM MULT-HEARTH FURNACE TESTS AT NICHOLS ENG WAS COMPLETED AND DRAFT OF FINAL REPORT WRITTEN. FINAL REPORT ON THE FILTER CAKE DRYING TESTS WAS COMPLETED. BENCH SCALE BUBBLE CAP CARBONATION TESTS INITIATED.	350.0	230.0	71.9	OCT 80	OCT 80
5 80 4225	RED WATER POLLUTION ABATEMENT SYSTEM NO ACTION TAKEN OR FUNDS EXPENDED DURING THIS PERIOD.	155.0	71.0	15.9	MAY 81	MAY 81
5 80 4226	ON-LINE MONITORS FOR WATER POLLUTANTS FUNDING WAS REDUCED TO \$100K. A NEW SCOPE OF WORK WAS WRITTEN TO SUPPORT THE REDUCED SPENDING. ARRCOM WILL ASSIGN FUNDS TO RAAP BASED ON THE REVISED SCOPE OF WORK, WHICH HAS BEEN COORDINATED WITH RAAP.	100.0	100.0	15.9	NOV 81	NOV 81
5 80 4231	IN-PLANT REUSE OF POLLUTION ABATED WATERS THE Y-LINE (METAL PARTS) AT LAAAP IS BEING SURVEYED FOR POTENTIAL RECYCLE-REUSE SCHEMES. SCOPE OF WORK AWARDED TO KANSAS AAP.	250.0	163.5	15.1	JUL 81	JUL 81
5 80 4236	AUTO LACE JACKETS FOR CENTER CORE CHARGES CONTRACTOR SCOPE OF WORK WAS PREPARED FOR A PROTOTYPE MACHINE TO ASSEMBLE THE LACING JACKET TO THE LOADING ASSEMBLY. COMPETITIVE BIDS ARE BEING SOLICITED.	612.0	612.0	15.9	SEP 81	SEP 81
5 78 4249	SEPARATION OF EXPLOSIVES FROM SPENT ACID/WATER SLURRIES REPLACEMENT PARTS NEEDED TO REPAIR THE DAMAGE TO THE BIRD-PANEVIS FILTER DURING DELIVERY WERE RECEIVED AND INSTALLED. INSTALLATION IS COMPLETE FOR THE FILTER TEST SCHEDULED FOR MID-JUNE. SOP FOR OPERATION HAS BEEN PREPARED.	460.0	430.0	30.0	DEC 78	DEC 80
5 78 4252	IMPROVE PRESENT PROCESSES FOR THE MANUFACTURE OF RDX + HMX CHARACTERIZED PRESENT HMX SIMMER PROCESS WITH RESPECT TO PARTICLE GROWTH, DESTRUCTION OF BY-PRODUCTS AND RESIDENCE TIME. STUDIES SHOW THAT PRESENT SIMMER PROCESS TIME CAN BE REDUCED FROM 4 HRS TO 1.5 HRS. FINAL ENGINEERING REPORT HAS BEEN WRITTEN.	281.0	69.5	166.0	MAY 80	AUG 80
5 79 4263	AUTO PILOT LINE F/CONT COOL AND PROC OF HE LD PROJ PROCESS PARAMETERS WERE VARIED DURING 16 COOLING TESTS ON 155MM, M107 PROJECTILES FILLED WITH COMP B. A 5.5 HOUR CYCLE WAS SUCCESSFUL WHICH PROCESSED 88 SHELLS WITHOUT CAST DEFECTS. FINAL REPORTS ARE BEING PREPARED.	329.0	32.0	294.0	JUL 80	SEP 80
5 80 4266	MFG, IHS& TEST EQUIPMENT FOR MAGNETIC POWER SUPPLY THE RESPONSE TO THE RFP WAS EVALUATED AND RETURNED TO PROCUREMENT 1 MAY 1980.	345.0			JUL 82	JUL 82

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5 77 4267	CONTINUOUS PROCESS FOR GRANULAR COMPOSITION B A SAFETY/SITE PLAN WAS PREPARED AND SUBMITTED TO SAFETY OFFICES FOR APPROVAL. A SPEC PACKAGE FOR DESIGN OF THE PILOT PLANT FACILITY WAS PREPARED BY D&Z AND FORWARDED TO NIRO ATOMIZER FOR PROPOSAL AND BID.	500.0	429.3	70.7	SEP 79	NOV 80
5 78 4267	CONTINUOUS PROCESS FOR GRANULAR COMPOSITION B A SCOPE OF WORK WAS PREPARED FOR THE PROCUREMENT AND INSTALLATION OF THE PILOT FACILITY FOR THE PRODUCTION OF GRANULAR COMP B.	254.0	9.0	47.0	MAR 81	DEC 81
5 77 4281	ENERGY SAVING AT ARMY AMMO PLANTS SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.	997.7	591.3	418.7	SEP 79	DEC 81
5 77 4281 A01	PROCESS ENERGY INVENTORY ELECTRICAL POWER REQUIREMENT MEASUREMENTS FOR THE NC BEATER AND COTTON DRY OPERATIONS HAVE BEEN COMPLETED AT RAAP. MONITORING OF THE STEAM USAGE FOR THE 14 NC BOILING TUBS HAS BEEN COMPLETED. RESULTS SHOW THAT ABOUT 6.7KG OF STEAM/KG OF NC ARE NEEDED.	351.8	262.6	89.2	JUN 79	DEC 81
5 77 4281 B02	REDUCED FORGING TEMPERATURE A TOTAL OF 7,539 155MM M107 PROJECTILES WERE FORGED AT 2000F W/O INCIDENT. PROJECTILE QUALITY WAS MAINTAINED AND NO REJECTS WERE PRODUCED. A 25% ENERGY SAVINGS UNDER PRODUCTION OPERATIONS ARE EXPECTED.	98.0	51.0	47.0	FEB 78	JUN 80
5 78 4281	ENERGY SAVING AT ARMY AMMO PLANTS SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.	1,059.5	809.8	239.6	MAR 80	DEC 81
5 78 4281 A01	PROCESS ENERGY INVENTORY DETAILED ENERGY AUDITS WERE PERFORMED ON EACH OF THE PROCESSES INVOLVED IN THE PRODUCTION OF M483 155MM ICM RDS AT KAAP. THIS HAS RESULTED IN THE ESTABLISHMENT OF ENERGY CONSUMPTION BASELINES FOR ALL OF THE INDIVIDUAL OPSNS ASSOC WITH THE M483 RD.	178.0	118.0	60.0		DEC 81.
5 78 4281 A04	ENERGY RECOVERY FROM WASTE HEAT SAFETY SITE APPROVAL AND SAFETY REVIEW FOR THE PROTOTYPE HEAT RECOVERY SYSTEMS FOR THE NC BOILING TUBS WAS RECEIVED. A CONTRACT WAS LET FOR THE CONSTRUCTION OF TWO HOT WATER STORAGE TANKS. DESIGN CHANGES ARE REQUIRED TO MAXIMIZE HEAT RECOVERY.	324.9	272.0	52.5		MAY 81
5 78 4281 A05	ENERGY RECOVERY FROM WOOD WASTE ARRADCOM MADE A PRESENTATION TO THE PBMA MANAGEMENT STAFF DETAILING THE STUDY METHODS AND CONCLUSIONS AND OFFERED SOME POSSIBLE ALTERNATIVES TO APPLY THIS NEW TECHNOLOGY AT MSAP. THE FINAL REPORT IS BEING PREPARED.	75.0	75.0			MAR 80

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5 78 4281 A08	CAVITATIONAL REMOVAL OF EXPLOSIVES DESIGN, PROCUREMENT, AND FABRICATION OF SYSTEM COMPONENTS FOR PHASE I WERE INITIATED. IN APRIL 80, THE IOWA AAP SAFETY DEPT STIPULATED THAT ALL TESTING BE DONE REMOTELY. TESTING IS NOW SCHEDULED FOR JUNE 80.	295.0	275.0	22.1		SEP 81	
5 78 4281 B04	WASTE HEAT RECOVERY THE TECHNICAL AND ECONOMIC FEASIBILITY OF RECOVERING WASTE HEAT GENERATED BY THE FORGE FURNACES AT THE SCRANTON AAP WITH A WASTE HEAT BOILER TO PRODUCE PROCESS STEAM WAS EVALUATED. IT WAS SHOWN THAT SUCH A SYSTEM WOULD REDUCE ENERGY CONSUMPTION.	120.1	77.6	39.3		JUN 80	
5 79 4281 A02	CONSERVATION OF ENERGY AT ARMY AMMUNITION PLANTS SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.	1,285.0	767.3	477.4	JUL 80	DEC 81	
5 79 4281 A01	PROCESS ENERGY INVENTORY DATA WAS COLLECTED ON LINE #3 AT IOWA AAP WHICH WILL BE USED TO ESTABLISH ENERGY CONSERVATION BASELINES ON A UNIT PROCESS BASIS. THIS INCLUDES MEASUREMENTS OF STEAM, ELECTRICITY AND COMPRESSED AIR. THESE DATA ARE BEING EXAMINED.	193.0	142.9	41.5	JUL 80	DEC 81	
5 79 4281 A03	OPTIMIZED INSULATION A COMPOUND INSULATION SCHEME HAS BEEN DEVELOPED WHICH CONSISTS OF A 2-INCH THICK LAYER OF FOAMED GLASS INSULATION, MASTIC COATED FIBERGLASS CLOTH, AND A 0.020-INCH THICK STAINLESS STEEL SHELL. THIS WAS APPLIED TO THE SIDEWALL OF A BOILING TUB.	193.0	103.0	87.7	OCT 79	SEP 80	
5 79 4281 A04	SYNTHETIC NATURAL GAS FOR PROCESS OPERATIONS A COMPREHENSIVE SURVEY OF FUEL REQUIREMENTS FOR PROCESS OPERATIONS IS UNDERWAY AT RAAP. AN ENGINEERING EVALUATION OF COAL GASIFICATION PROCESSES AND RELATED TECHNOLOGY IS CONTINUING.	257.0	238.0	18.7	SEP 79	MAR 81	
5 79 4281 B04	ENERGY RECOVERY FROM WASTE HEAT ALL EQUIPMENT WITH THE EXCEPTION OF THE HEAT EXCHANGER HAS BEEN ORDERED FOR SUB-TASK #3. SOME OF THE EQUIPMENT HAS BEEN RECEIVED.	515.0	239.0	275.9	JUN 80	MAY 81	
5 80 4281 B04	WASTE HEAT RECOVERY A CONTRACT WAS AWARDED TO MECH TECH INC TO DESIGN A WASTE HEAT BOILER FOR SCRANTON AAP. IT WAS DETERMINED THAT APPROXIMATELY 8000 LBS/HR OF STEAM CAN BE PRODUCED FROM THE EXHAUST OF EACH FORGE FURNACE. SAVINGS WERE ESTIMATED TO BE \$140K PER YEAR.	127.0	44.4	53.4	AUG 79	JUN 81	
	CONSERVATION OF ENERGY AT ARMY AMMUNITION PLANTS SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.	1,234.0	919.0	91.1	JUN 82	JUN 82	

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5 80 4281 A01	PROCESS ENERGY INVENTORY FUNDS WERE RELEASED TO THE AMMO PLANTS.	478•0	343•0	71•6	DEC 81	DEC 81
5 80 4281 A04	ENERGY RECOVERY FROM WASTE HEAT FUNDS ARE BEING RELEASED TO THE GOCO PLANTS.	450•6	372•6	12•6	JUL 81	JUL 81
5 80 4281 A06	UNCOOLED PRODUCER GAS FOR KETENE MANUFACTURE FUNDS ARE BEING RELEASED TO THE GOCO PLANT. THE MILESTONES WERE REVISED TO PERMIT EXPANSION OF THE TASK INTO A TWO YEAR EFFORT SO IT COULD ENCOMPASS THE INCLUSION OF A DESIGN CRITERIA PHASE OF WORK.	305•4	203•4	6•9	JUN 82	JUN 82
5 79 4285	TNT EQUIVALENCY TESTING FOR SAFETY ENGINEERING TESTING AND REPORT COMPLETED ON M42 GRENADES AND M483 PROJECTILES. ANALYTICAL STUDY CONDUCTED ON NOL-13C AND PA-130.* TESTING COMPLETED FOR OCTOL 75/25, HMX AND RDX.	420•0	41•7	339•8	MAY 80	DEC 80
5 80 4285	TNT EQUIVALENCY TESTING FOR SAFETY ENGINEERING TEST PLANS FOR TNT EQUIVALENCE OF PROPELLANTS JA-2(5460), DIGI-RP(15420, 15421, 15422, 15423) HAVE BEEN PREPARED AND SUBMITTED TO ARRCOM SAFETY FOR APPROVAL.	406•0		14•7	MAY 81	MAY 82
5 78 4288	EXPLOSIVE SAFE SEPARATION AND SENSITIVITY CRITERIA CONFIRMATORY TESTING WAS COMPLETED ON 155MM M483 HE PROJECTILES ON SAFE SEPARATION. INITIAL TESTING ESTABLISHING SAFE SEPARATION FOR NITROGUANIDINE AND GUANIDINE NITRATE WAS COMPLETED. FLAKE TNT WAS TESTED IN WOODEN, STEEL, AND FIBERGLASS TUNNELS.	816•0	165•4	622•7	FEB 79	JUN 80
5 79 4288	EXPLOSIVE SAFE SEPARATION AND SENSITIVITY CRITERIA NONPROPAGATION SPACINGS WERE ESTABLISHED FOR PBXN-5 PELLETS. SHELL BODIES, LOADED BODIES, FUZED PROJ. AND LOADED BODIES AT ELEVATED TEMPS. COMBINED PROJECT TESTS WERE PARTIALLY COMPLETED WITH 155MM AND 8 INCH ROUNDS.	643•0	175•3	239•2	OCT 80	OCT 80
5 80 4288	EXPLOSIVE SAFE SEPARATION AND SENSITIVITY CRITERIA TESTING HAS ESTABLISHED 5 FEET CENTER TO CENTER DISTANCE AS SAFE SPACING FOR THE 8 INCH M509HE PROJ. TEST PLANS HAVE BEEN PREPARED FOR THE XM74AP, XM75AT-AV MINES AND THE 105 M456HEAT-T PROJ. SOW FOR THE SECONDARY FRAGMENT TEST WAS AWARDED TO IITRI.	767•0	304•0	16•8	SEP 81	AUG 81
5 79 4291	BLAST EFFECTS IN THE MUNITIONS PLANT ENVIRONMENT A TEST PLAN IS BEING PREPARED FOR THE ALTERNATE CONSTRUCTION MATERIALS, MASONRY, CLAY TILE, ETC. A 70 LB CHARGE FOR FINAL TESTING OF AN EXPLOSIVE CONTAINMENT CELL WAS MANUFACTURED.	235•0	80•0	62•6	SEP 80	SEF 81

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5 80 4291	BLAST EFFECT IN THE MUNITION PLANT ENVIRONMENT ANALYTICAL STUDIES WERE CONDUCTED FOR THE DEVELOPMENT OF DESIGN CRITERIA AND PROCEDURES FOR ALTERNATE CONSTRUCTION MATERIALS.		100.0		3.4	AUG 82 AUG 82
5 77 4301	ACCEPT PLAN FOR CONTINUOUSLY PROD MULTIBASE CANNON PROP-CAM NO SIGNIFICANT WORK ACCOMPLISHED. REFER TO PROJECT NUMBER 5774301		110.0	15.0	95.0	JAN 77 SEP 80
5 76 4301	ACCEPT PLAN-CONT PRODUCTION MULTI-BASE CANNON PROPELLANTS NO SIGNIFICANT WORK ACCOMPLISHED. REFER TO PROJECT NUMBER 5774301		395.0	180.0	215.0	OCT 76 SEP 80
5 77 4301	ACCEPT PLAN-CONT PRODUCTION MULTI-BASE CANNON PROPELLANTS PRELIMINARY TESTS OF THE DYNAGUN WITH PROPELLANT HAVE BEEN CONDUCTED. A CONTRACT HAS BEEN LET TO CONDUCT A FULL TEST OF THE DYNAGUN WITH EXPERIMENTAL LOTS OF M30A1 PROPELLANT. FUNDING WAS DISPERSED TO THE PROVING GROUND TO CONDUCT A BALLISTIC TEST.		547.0	254.5	278.0	MAY 78 SEP 80
5 79 4305	PDN TECH FOR IMPROVED WP 155MM SMOKE MUNITION (XM825) EQUIPMENT DESIGN WAS COMPLETED AND DETAIL DRAWINGS FOR NOZZLES AND VOLUMETRIC CYLINDERS WERE PROVIDED. FABRICATION OF COMPONENTS FOR THE FILL MACHINE ARE COMPLETE AND ARE BEING INSTALLED ALONE WITH THE CONTROL SYSTEM. PROCESS TESTS SHOW PREHEAT REQMT		265.0		220.0	JUN 80 OCT 80
5 79 4309	PROCESS DEVELOPMENT FOR 120MM TANK AMMUNITION SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.		847.6	516.1	289.4	NOV 80 DEC 81
5 79 4309 01	DEVELOP MFG METHODS FOR STICK AND JA-2 PROPELLANT ALL INFO ON DEGN, DEGN SPENT ACID, AND RELATED POLLUTION ABATEMENT DATA HAS BEEN REVIEWED. SAMPLES OF GERMAN MFGD JA-2 PROP WERE OBTAINED AND CHARACTERIZATION WAS BEGUN. PROCEDURES WERE ESTABLISHED FOR PRODUCING SLURRIES OF JA-2 PASTE FOR ROLLING.		654.0	514.0	109.5	DEC 81 DEC 81
5 79 4309 02	EXPLOSIVE LOADING OF 120MM HEAT-MP THE CAST LOADING PROGRAM WAS DISCONTINUED AND THE TASK REWRITTEN FOR PRESS LOADING. A NEW SOW WAS PREPARED. A REVIEW OF PRELIMINARY DRAWINGS OF REDESIGNED METAL PARTS INDICATE THAT MANY PROBLEM AREAS EXIST AND MUST BE RESOLVED BEFORE WORK CAN BEGIN.		193.6	2.1	179.9	DEC 80 DEC 80
5 80 4309	PROPELLANT PROCESS DEVELOPMENT FOR 120MM TANK AMMUNITION SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.		3,726.0		15.0	JUN 82 JUN 82
5 80 4309 01	DEVELOP MFG METHODS FOR STICK AND JA-2 PROPELLANT COMPLETED LITERATURE SEARCH. COMPLETED CHARACTERIZATION OF PROPELLANT. SEVERAL DIE CONFIGURATIONS FOR A FOUR INCH PRESS WERE DESIGNED. FABRICATED, AND USED TO EXTRUDE CARPET ROLLS. AN 8-STRAND DIE HOLDER IS BEING FABRICATED FOR THE 15 INCH PRESS.		1,881.4		15.0	DEC 82 DEC 82

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5 80 4309 02	EXPLOSIVE LOADING OF 120MM HEAT-MP FY80 FUNDS WERE RECEIVED IN MAY 80.		6 08• 3		DFC 82	DEC 82
5 80 4309 03	ASSEMBLY PROCESS DEVELOPMENT FY80 FUNDS WERE RECEIVED IN MAY 80.	242• 0			JUN 82	JUN 82
5 80 4309 06	PROCESS FOR MOLDING REAR SEAL, 120MM APDS FY80 FUNDS WERE RECEIVED IN MAY 80.	383• 7			JUN 82	JUN 82
5 80 4309 09	INVESTIGATE FORMING + HEAT TREAT METHODS FOR CORE+APDS FY80 FUNDS WERE RECEIVED IN MAY 80.	400• 0			JUN 82	JUN 82
5 80 4309 10	PRECISION FORMING OF TAIL FIN, 120MM APDS FY80 FUNDS WERE RECEIVED IN MAY 80.	210• 6			JUN 82	JUN 82
5 79 4310	DMSO RECRYSTALLIZATION OF HMX/RDX CONTINUOUS OPERATION OF THE DMSO PILOT LINE WAS SUCCESSFULLY DEMONSTRATED. DESIGN RATE WAS ACHIEVED WITH SOME EQUIPMENT PROBLEMS. PRELIMINARY QUAL TESTING OF PILOT PLANT RECRYSTALLIZED MATERIAL WAS INITIATED.	483• 0	294• 0	65• 0	DEC 81	DEC 81
5 80 4310	DMSS RECRYSTALLIZATION TEST OF PILOT PLANT DMSS RECRYSTALLIZED MATERIAL QUALIFICATION TESTING OF PILOT PLANT DMSS RECRYSTALLIZED MATERIAL HAS BEEN INITIATED.	278• 0		40• 0	JUN 81	DEC 81
5 77 4311	DEVELOP AUTOMATED PRODUCTION EQUIPMENT FOR XM 692 PLUG PULLER PASSED ACCEPTANCE TESTING AND IS IN PRODUCTION AT LOAAP. MOLDING MACHINE IS IN INSTALLATION PHASE. FINAL ASSEMBLY MACHINE AND LEAK TESTER MAY BE DEFERRED TO FY82 PROJECT. WORK SUSPENDED DUE TO LACK OF OVERLAY ASSEMBLIES.	1•452• 9	1•184• 6	248• 9	AUG 76	JAN 81
5 79 4312	INJECTION MOLDING FOR PRODUCTION EXPLOSIVE LOADING INJECTION MOLDING MACHINE WAS MODIFIED AND CHECKED OUT WITH INERT MATERIAL. 70/30 CYCLOTOL WAS LOADED INTO BLU63 BOMBLETS SUCCESSFULLY WITH THE MODIFIED MACHINE.	261• 0	181• 2	73• 5	JUN 80	JUN 81
5 80 4312	INJECTION MOLDING FOR PRODUCTION EXPLOSIVE LOADING A SCOPE OF WORK WAS PREPARED AND A CONTRACT AWARDED TO KANSAS AAP TO ACCOMPLISH TEST LOADING AND PRODUCTION DESIGN OF INJECTION MOLDING EXPLOSIVE LOADING ACM ITEMS.	279• 0	125• 0	27• 7	JUL 81	JUL 81
5 78 4322	CHARACTERIZE DORMANCY EFFECT ON ELECTRONIC EQUIPMENT THE 5TH REACTIVATION CYCLE OF THE ELECTRONIC PROCESS CONTROL SYSTEM (EPCS) WAS COMPLETED AT JOLIET AAP. USER ADAPTED PROCEDURE FOR START UP OF EPCS WAS COMPLETED. SECOND STAGE SIMPLIFICATION FOR CONTINUOUS TNT PROCESS CONTROL ELECTRONICS WAS BEGUN.	185• 0	87• 0	98• 0	MAR 79	JUN 80

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5 79 4322	MMT DESIGN/CHAR OF ELEC CONT SYST FOR PROD FAC REACTIVATION EFFORT AT VOLUNTEER AMP CONTINUES. DOCUMENTATION REVIEW OF EPICS WAS COMPLETED. USER ADAPTED PROCEDURE FOR EPICS ON CONTINUOUS TNT LINE CONTINUES. RELIABILITY ANALYSIS CENTER COMPILATION OF COMPONENT DATA INITIATED FOR CONTINUOUS TNT LINES	609.0	199.0	235.0	FEB 80	SEP 81
5 80 4322	CHARACTERIZE DORMANCY EFFECT ON ELECTRONIC EQUIPMENT AGREEMENT HAS BEEN REACHED WITH 5 ADDITIONAL OPERATING CONTRACTORS OF ARMY AMMO PLANTS TO PARTICIPATE IN THIS MMT. MAINTENANCE METHODOLOGY CONTRACTS FOR ARMY AMMO PLANTS WERE REVIEWED PRIOR TO AWARD.	515.0	84.1	22.9	APR 82	APR 82
5 79 4332	IMPROVEMENTS FOR POTTING ELECTRONIC ASSEMBLY FOR GATOR AEROSET ORDNANCE & MFG CO EVALUATED ALTERNATE POTTING MATERIALS AND METHODS. A CLOSED MOLD WAS DESIGNED FOR LIQUID RESIN MOLDING. AN AIR-PRESSURE GUN WAS MODIFIED TO FEED THE RESIN INTO THE MOLD	83.0	78.0	4.0	APR 80	OCT 80
5 79 4335	ALTERNATIVE PROC F/TITANIUM GYROSCOPE COMPONENTS-COPPERHEAD TEST SPECIMENS WERE FORGED AND HOT ISOSTATIC PRESSED USING DIFFERENT TITANIUM COMPOSITIONS. PREFORMS WERE DESIGNED, COMPRESSION PROPERTIES AND PREFORM SINTERING PROCESS DETERMINED AND SAMPLE HIP STUDIES PERFORMED.	411.0	386.0	8.0	FEB 81	MAY 81
5 76 4337	ALTERNATE MATERIALS FOR CURING/MOLDING PROCESS F/AP MINES STUDY OF EFFECT OF ATC-3 ON CURE TIME OF ADAM ENCAPSULANT SHOWED REDUCED FLEX STRENGTH AND CURE TIME MAKING ATC-3 UNACCEPTABLE. UV RADIATION CURE OF OTHER FASCAM ENCAPSULANTS RESULTS IN UNACCEPTABLE PROC TEMPS. INSITU BONDING GATOR ADAPTOR FEASIBLE.	218.0	32.5	158.5	AUG 78	JUL 80
5 76 4338	DEV AUTO PROCESS + PROTO EQUIP FOR LAP OF M483 155MM PROJ0 A DEMONSTRATION TEST WAS CONDUCTED AT THE CONTRACTOR'S PLANT IN APRIL 80. THE MACHINE FAILED TO MEET THE REQUIRED RATE. THE CONTRACTOR IS COMPLETING DEBUGGING. RETEST WAS SCHEDULED FOR JUN 80. IF SUCCESSFUL, THE MACHINE WILL BE SHIPPED TO KAAP.	833.6	654.5	178.0	MAR 79	DEC 80
5 78 4341	IMPROVED NITROCELLULOSE PURIFICATION PROCESS DETAIL DRAWINGS FOR THE CONICELL WERE RECEIVED AT RAAP IN JAN 80. THE DRAWINGS INDICATED THAT SCHEDULE 5S 304 SS PIPE BE USED. HERCULES CALC THAT THE PIPE STRENGTH WOULD BE MARGINAL AT OPNG COND. A SCHEDULE 10 PIPE WILL NOW BE USED.	734.9	644.9	90.0	APR 79	DEC 80
5 79 4341	IMPROVED NITROCELLULOSE PURIFICATION PROCESS SELECTION AND SIZING OF PILOT PLANT EQUIPMENT HAS BEEN COMPLETED. ALL MAJOR EQUIPMENT ITEMS ARE EITHER ON ORDER OR AWAITING QUOTATIONS FROM VENDORS. PREP OF DRAWINGS REQUIRED FOR MODIFICATION OF THE BLDG TO HOUSE THE ATTRITION MILLS WAS COMPLETED.	742.0	673.0	69.0	NOV 80	JUN 81

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5 80 4341	IMPROVED NITROCELLULOSE PURIFICATION PROCESS A PLANT VISIT WAS MADE IN MAR 80 TO DISCUSS AND OBSERVE A PROD SCALE ATTRITION MILL AND A CONTROL SYSTEM USING A FRENESS ANALYZER. IT WAS CONCLUDED THAT A FRENESS ANALYZER COULD FUNCTION EFFECTIVELY AS A CONTROL INSTRUMENT IN THE PULPING OF NC.	583.0		38.0	DFC 81	DEC 81
5 80 4344	ESTAB DF WASTE DISPOSAL TECH FOR M687 BINARY PROJECT PROJECT PLANNING WAS COMPLETED. A REVIEW AND ANALYSIS OF PRIOR DF DISPOSAL WORK WAS INITIATED.	108.0		22.0	DEC 82	DEC 82
5 78 4349	MODERNIZATION OF PRESS LOADING FOR HEP PROJECTILES THE FIRST INCREMENT NET-WEIGHER HAS BEEN INSTALLED AND CHECKED OUT FOR OPERATION. ALL EQUIPMENT AND ACCESSORIES WERE INSTALLED. HOWEVER, UPON STARTUP, THE MAIN PRESS RAM WOULD NOT FUNCTION AS DESIGNED. THE PROB WAS DIAGNOSED AND REPAIR PARTS ORDERED.	250.0		244.8	JUN 80	JUL 80
5 80 4357	NONDESTRUCTIVE TEST EQUIP F/LARGE CALIBER MUNITIONS F/M483A1 THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	556.0				
5 77 4362	REHEAT OF LARGE CAL PROJECTILES TO ELIMINATE BASE SEPARATION CONTROLLED COOLING PROCESSES PROVED SUCCESSFUL FOR THE 155MM M549 AND XM795 PROJECTILES. THE PROCESS WAS IMPLEMENTED AT LOUISIANA AAP FOR ALL XM795 DT II PROJECTILES WITH TNT.	450.0		23.0	422.0	APR 78
5 80 4411	SMALL CALIBER AMMUNITION PROCESS IMPROVEMENT PROGRAM FUNDING WAS RECEIVED AT ARRADCOM ON 25 MAR 80. A SCOPE OF WORK WAS PREPARED FOR THE LAKE CITY AAP EFFORT. CONTRACT AWARD IS EXPECTED IN JUNE 80.	453.0		13.0	DEC 83	DEC 83
5 78 4444	BODY FOR M42/M46 GRENADE EVALUATION OF SOLICITATIONS WAS COMPLETED. NEGOTIATIONS WERE COMPLETED WITH DAYRON AND MB ASSOCIATES. ONE CONTRACT WAS AWARDED TO DAYRON. CONTRACT IS EXPECTED TO BE AWARDED TO MBA BY 30 JUNE 80.	626.0	134.3	189.7	JUN 79	FEB 82
5 79 4444	BODY FOR M42/M46 GRENADE CONTRACT AWARDED TO DAYRON. A CONTRACT SCHEDULED TO BE AWARDED TO MBA IN JUNE	563.0	309.2	26.9	SEP 80	OCT 82
5 78 4447	NITROGUANIDINE PROCESS CONTROL ANALYTICAL SYSTEMS AN ION CHROMATOGRAPH WAS PROCURED AND INSTALLED. FEASIBILITY OF APPLICATION TO NQ PROCESS CONTROL WAS DEMONSTRATED.	470.0	20.0	391.3	JUL 79	SEP 80
5 78 4449	PROCESS IMPROVEMENT FOR COMPOSITION C-4 THREE TEST LOTS OF 2500 LBS EACH OF COMP C-4 WERE EXTRUDED, EVALUATED AND TESTED AT LOAAP. RESULTS INDICATE NO MAJOR DIFFERENCES BETWEEN STD COMP C-4 OR COMP C-4 USING NOMINAL CLASS 1/7 RDX OR NOMINAL CLASS 1 RDX.	120.0	88.9	31.1	OCT 79	JUL 80

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PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT DATE
5 78 4454	AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL-CAM SEE PROJECT 5 80 4454 FOR STATUS. THE FY78 FUNDING FOR THIS PROJECT IS INCLUDED IN THE FY80 AUTHORIZED FUNDS.				JUL 80	APR 82
5 79 4454	AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL-CAM SEE PROJECT 5 80 4454 FOR STATUS. THE 79 FUNDING FOR THIS PROJECT IS INCLUDED IN THE FY80 AUTHORIZED FUNDS.				DEC 81	APR 82
5 80 4454	AUTO INSP DEVICE EXPLOS CHARGE SHELL (AIDECs) SEE SUBTASKS BELOW FOR PROJECT STATUS.		4•672•0	2•077•8	523•0	APR 82
5 80 4454 01	AUTOMATIC INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL (A, THE PROTOTYPE VERIFICATION TESTS ARE BEING DEVELOPED. THESE TESTS WILL BE VERIFIED USING THE ENGINEERING AT THE CONTRACTOR PLANT IN LATE JUNE 1980.				APR 82	APR 82
5 80 4454 02	AUTOMATIC X-RAY INSPECTION SYSTEM (AXIS) THE COMPUTER HARDWARE HAS BEEN PURCHASED, DELIVERED, AND IS BEING INTEGRATED INTO THE SYSTEM. THE OPTICAL SYSTEM HAS BEEN DESIGNED AND IS BEING FABRICATED. THE PROCURE ACTION FOR THE CONTRACT EXTENSION HAS STARTED.				AUG 80	MAR 81
5 79 4460	CONT MIXER-ILLUMINANT COMP ANAL + CONTROL SYSTEM VENDOR SYSTEM EVALUATION AND EQUIPMENT SELECTION COMPLETE. THE RIGAKU MINIFLEX XRAY DIFFRACTION UNIT SELECTED FROM 3 SYSTEMS EVALUATED BASED ON FAVORABLE COST AND MINIMAL INSTALLATION REQUIREMENTS. DEMO TEST DELAYS CAUSED 3 MONTHS MILESTONE SLIPPAGE.		236•0	114•0	122•0	DEC 80
5 78 4462	MODERNIZED FAD FOR MULTI-BASE PROPELLANTS FAD BAY WAS MODIFIED WITH INSTALLATION OF HEAT PANELS. NEW FLOOR, AIR DUCTS AND BLOWER. TEMPERATURE AND PRESSURE MEASURING AND RECORDING EQUIPMENT WAS INSTALLED. BAY EVALUATION TESTS WERE STARTED. NG SCRUBBER WAS ORDERED.		592•0	502•0	90•0	AUG 79
5 79 4462	MODERNIZED FAD FOR MULTI-BASE PROPELLANTS BIDS RECEIVED FOR SOLVENT ABSORBER DESIGN. HEAT PIPE ANALYSIS SHOWS IT TO BE UNECONOMIC WITH LOW SCRUBBER OPERATING TEMPERATURES. STUDY TO IDENTIFY PROCESS CONTROL REQUIREMENTS COMPLETED.		528•0	396•0	115•9	JUL 80
5 80 4462	FORCED AIR DRY FOR MULTI-BASE PROPELLANTS A STUDY TO IDENTIFY PROCESS CONTROL REQUIREMENTS WAS COMPLETED. THE INFORMATION WILL BE USED FOR WRITING CONTROL SYSTEM FUNCTIONAL CRITERIA FOR THE FAD COMPLEX.		850•0	509•0	36•0	SEP 80

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PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
5 78 4466	EVAL TNT, CYCLOTOL, AMATEX, OCTOL IN MELT POUR FACILITIES PROCUREMENT OF ALL EXPLOSIVES WAS COMPLETED IN FEB 80. VISCOSITY TESTS WERE PERFORMED ON TNT SLURRIES OF VARYING PERCENT SOLIDS. TEST RUNS PERFORMED WITH CYCLOTOL IN THE MELT-POUR PILOT PLANT WERE UNSUCCESSFUL BECAUSE OF THE HIGH SOLIDS CONTENT.	200•0	31•3	151•1	DEC 78	SEP 80
5 79 4466	EVAL TNT, CYCLOTOL, OCTOL IN MELT-POUR FACILITY THE DESIGN DRAWINGS FROM S. HOWES INC FOR THE CONTINUOUS TNT MIXING SYSTEM WERE REVIEWED AND RETURNED WITH COMMENTS. A HAZARDS ANALYSIS HAS BEEN COMPLETED ON THE TNT MIXING SYSTEM AND NO UNACCEPTABLE HAZARDS WERE FOUND.	461•0	125•8	199•7	APR 81	JUN 81
5 78 4469	AUTOMATED INSERTION OF GRENADE LAYERS. SUCCESSFULLY DEVELOPED THE AUTOMATED INSPECTION EQUIPMENT FOR THE AUTOMATED INSERTION SYSTEM AND COMPLETED THE DESIGNS FOR THE RING TRANSFER, PRESS INSERTION, AND INSPECTION AND PRESS HEAD DEVICES.	502•0	275•0	216•0	APR 79	MAR 81
5 79 4469	AUTOMATIC INSERTION OF GRENADE LAYERS CONTRACTS WERE ISSUED FOR BOTH THE PREPACK ASSEMBLY EQUIPMENT AND THE INSERTION EQUIPMENT. PRELIMINARY RING PACK DESIGNS ARE BEING EVALUATED. INITIAL DESIGN AND MOCKUPS FOR THE GRENADE PREPACK EQUIPMENT WERE DEVELOPED AND ARE UNDER EVALUATION.	1,150•0	871•0	62•0	JAN 80	MAR 81
5 80 4469	AUTOMATIC INSERTION OF GRENADE LAYERS FUNDS WERE RECEIVED AND CONTRACTS AWARDED TO NRC AND MBA.	350•0	177•8		JAN 81	SEP 81
5 79 4474	DEHUMIDIFIED AIR FOR DRYING SINGLE- BASE PROPELLANT DESIGNED AIR DRYER WITH DESCENTICANT PURCHASED AND READY TO INSTALL. INITIAL HAZARDS ANALYSIS DATA INDICATES PROMISE FOR CONDENSATION-BY-COOLING APPROACH.	175•0	100•0	71•1	AUG 80	AUG 80
5 78 4498	CONSOLIDATION + AUTOMATIC ASSEMBLY OF SMALL MINES THE DESIGN AND FABRICATION CONTRACT FOR THE ELECTRONIC TEST SET HAS BEEN AWARDED. WORK IS PROGRESSING ON THE DESIGN AND FABRICATION OF THE ELECTRONICS TEST SET.	325•0	130•0	165•0	DEC 80	JAN 81
5 79 4498	CONSOLIDATION + AUTOMATIC ASSEMBLY OF SMALL MINES CONTRACT HAS BEEN AWARDED TO BUILD THE AUTOMATIC SOLDERING MACHINE.	572•0	480•0	44•0	SEP 80	SEP 81
5 80 4498	DEV METH FOR CONSOL AND AUTO ASSY OF SMALL MINES SCOPE OF WORK FOR MECHANIZED ASSEMBLY EQUIPMENT HAS BEEN RELEASED FOR CONTRACTOR BIDS.		392•0		DEC 81	DEC 81
5 78 4508	PROCESS IMPROVEMENT OF PRESSABLE RDX COMPOSITIONS A FINAL ENG RPT, "PROCESS IMPROVEMENT OF PRESSABLE RDX COMP - BENCH PHASE," WAS ISSUED. A PRODUCTION ORDER FOR 50,000 LBS OF COMP A-5, USING THE PROCESS DEVELOPED BY THIS PROJECT WAS FILLED AND SHIPPED TO KAAP AND LSAAp.	300•0	241•0	59•0	NOV 78	DEC 80

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PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES-ENT COMPLE- TE DATE
5 79 4508	PROCESS IMPROVEMENT OF PRESSABLE RDX COMPOSITIONS A FINAL ENGINEERING RPT. "FINAL EVALUATION OF WOLVERINE DRYER." WAS ISSUED. MODIFICATIONS MADE TO THE WOLVERINE DRYER AND THE FISHER-KLOSTERMAN SCRUBBERS HAVE ELIMINATED THE A-7 DUSTING PROBLEMS IN BUILDING I-1.	357.0	289.0	64.5	DEC 79	MAY 81
5 80 4508	PROCESS IMPROVEMENT OF PRESSABLE RDX COMPOSITIONS WORK HAS NOT STARTED BECAUSE OF DELAY IN CONTRACT AWARD TO HOLSTON AAP.	506.0		53.1	APR 82	APR 82
5 76 6200	SMALL CALIBER AMMO PROCESS IMPROVEMENT PROGRAM TESTING OF THE CARTRIDGE MEASUREMENT AND EJECT SYSTEM (CMES) HAS BEEN COMPLETED. BASED ON THESE TEST RESULTS, PROCUREMENT OF FOLLOW-ON SYSTEMS IS NOT ANTICIPATED. THE CMES IS NOT COST EFFECTIVE.	1,300.0	298.0	1,002.0	AUG 76	AUG 80
5 77 6200	SMALL CALIBER AMMO PROCESS IMPROVEMENT PROGRAM THE WATERBURY-FERREL CONTRACT WAS MODIFIED TO FABRICATE ADDITIONAL TOOL SETS. A CONTRACT WAS AWARDED TO OLIN CORPORATION FOR A 90 DAY PRODUCTION OF THE MMT-DEVELOPED CARTRIDGE CASE CUP TOOLING.	1,218.0	1,086.9	74.4	FEB 78	AUG 80
5 76 6472	APPLN OF ALT PROCES FOR FAB OF PRECIS METAL PARTS FOR MTFUZE ESTABLISHED PROCESS PARAMETERS AND DIE DESIGN TO PROVIDE ACCEPTABLE PRODUCT. ADDITIONAL DIES WERE FABRICATED AND TESTING WAS INITIATED TO EVALUATE THE PROCESS FOR OTHER PINION CONFIGURATIONS.	400.0	339.7	58.0	FEB 78	SEP 80
5 77 6494	NEW CONCEPTS FOR MFR AND INSPECT OF 20MM 25MM 30MM AMMO INDIVIDUAL WORK EFFORTS CANNOT BE IDENTIFIED TO SPECIFIC FISCAL YEARS OF FUNDING. THE TASKS ARE THEREFORE ARBITRARILY ASSIGNED TO A FISCAL YEAR AND REPORTED ON BELOW.	1,302.0	1,186.0	116.0	AUG 79	AUG 80
5 75 6494	MANUFACTURE AND INSPECTION OF CAL50, 20MM, AND 30MM AMMO FUZE TO PROJECTILE ASSEMBLY-THIS EFFORT IS BEING TERMINATED. REMAINING FUNDS WILL BE USED TO SHIP THE EQUIPMENT TO OLIN AT MARION, ILLINOIS.	3,760.0	2,256.0	1,504.0	DEC 76	AUG 80
5 76 6494	MANUFACTURE AND INSPECTION OF CAL50, 20MM, AND 30MM AMMO HEI CHARGING MACHINE-THIS EFFORT HAS BEEN TERMINATED. COMPLETION OF THE EFFORT WOULD BE TOO LATE FOR SUPPORT OF THE FACILITY PROJECT.	1,196.0	819.0	377.0	DEC 77	AUG 80
5 77 6494	NEW CONCEPTS FOR MFR AND INSPECT OF 20MM 25MM 30MM AMMO BALLISTIC TEST SUBMODULE-TRACE DETECTOR PROBLEMS WERE SOLVED AND CORRECTED UNITS WERE SHIPPED TO LCAA. THE CONTRACT WITH PURVIS SYSTEMS INC. WAS COMPLETED. A COMPARISON BETWEEN THE NEW SYSTEM AND PRESENT TEST EQUIPMENT WAS STARTED.	2,220.0	1,718.0	496.0	JUN 75	AUG 80

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1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ. NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
5 79 6553	ADAPT ACOUSTIC ANALYSIS/INSPECT WELDED OVERLAY BANDS-ARTYSHL THE TEST STANDARDS WERE FABRICATED AND ACCEPTED AS PRODUCTION LINE STANDARDS. THE APPROVAL OF THE STANDARDS WERE DELAYED DUE ATTAINING THE DESIRED WELDING CHARACTERISTICS.	95.0	20.0	16.4	MAY 80	AUG 80
5 76 6557	CONTINUOUS PROPELLANT DRYING SALT COATING AND GLAZING. INTENSIVE TESTING OF DRYER FEED SYSTEM COMPLETED. ALL COMPONENTS PERFORMING ACCURATELY AND REPRODUCIBLY. TESTING OF FLUID BED DRYER HAS NEARLY ACHIEVED 90 LB/HR. A 32-HR TEST OF DRYER AT 60-90 LB/HR IS PLANNED FOR JUNE 1980.	862.0	811.0	51.0	DEC 76	JUL 80
5 78 6596	BALL PROPELLANT PILOT PLANT STUDIES IN THE 10 GAL STILL HEAVY WALL COATINGS OF LACQUER FILMS FOUND AT 120 PCT OF NORMAL LOADING. REDUCTION IN LOADING TO 110 PCT APPEARS TO ELIMINATE DEAD SPOTS. THE MAX YIELD STUDIES IN THE 100 GAL STILL WERE MORE DISRUPTED BY RAFTING THAN 10 GAL STILL.	1,618.0	1,475.0	52.0	JAN 79	JUL 81
5 76 6599	2ND GENER ELEC-OPTIC PROJ CAVITY INS EQ FOR 155-175MM PROJOS THE CONTRACT MODIFICATION WAS AWARDED IN JAN 1980. THE CONTRACTOR HAS INSTALLED THE EQUIP AT HIS NEW FACILITY AND IS PROCEEDING WITH THE DESIGN PHASE OF THE CONTRACT MODIFICATION. DUE TO CONTRACTMOD, ALL THE MILESTONES HAVE BEEN DELAYED.	190.9	163.9	7.5	SEP 77	DEC 80
5 76 6628	AUTOMATED INSPECT. OF M-T FUZE COMPONENTS-MOVE. PLATES- THE CONTROL COMPUTER PROGRAM PROBLEM WAS RESOLVED IN JAN 80. THE FEASIBILITY STUDY FOR INS P OF M577 MTSQ PLATES WAS COMPLETED. THE AUTOMATIC INS P MACHINE SATISFACTORILY INS P ALL OF THE PLATES EXCEPT PLATE NO 1 TIMER BECAUSE OF LIMITED AXIS CAPABILITY	250.0	198.6	49.6	JAN 77	JUN 80
5 77 6632	AUTO INSPECTION DEVICES FOR ART PROJECTILES IN MOD PLANTS DUE TO COST OVERRUN ON THE EDDY CURRENT SYSTEM, ADDITIONAL FUNDS WERE REQUESTED FROM ARRADCOM. A DEMONSTRATION TEST OF THE O GIVE SYSTEM HAS BEEN COMPLETED BY THE CONTRACTOR. THE SYSTEM IS BEING PREPARED FOR SHIPMENT TO ARRADCOM	589.0	453.6	135.4	SEP 78	MAR 81
5 78 6634	MFG DU ALLOYS FOR LARGE CALIBER ARMOR DEFEATING PROJECTILE DATA GENERATED AT NATIONAL LEAD OF OHIO HAS BEEN ANALYZED AND THE FINAL REPORT IS BEING WRITTEN.	400.0	355.0	355.0	FEB 79	AUG 80
5 79 6634	MFG DU ALLOYS FOR LARGE CALIBER ARMOR DEFEATING PROJECTILE SUBCONTRACTS HAVE BEEN AWARDED BY FORD AAC FOR THE INJECTION MOLD, MOLDING SYSTEM, AND TRIM STATION. ALL TASKS ABOUT 35 PERCENT COMPLETE WITH DEMO IN AUGUST 1980.	542.0	36.0	158.3	AUG 80	APR 81
5 77 6640	PROD CONTROL/QA OF SHAPED CHG LINERS BY AUTO X-RAY ANAL FORTY-FIVE PRECISION QUALITY AND 80 CONVENTIONAL QUALITY LINERS WERE FABRICATED, ASSEMBLED INTO M456 BODIES AND LOADED WITH COMP B EXPLOSIVE. X-RAYS WERE TAKEN WITH 70 CURIE IRIDIUM SOURCE. PIPING CAVITIES WERE OBSERVED. SOME ASSEMBLIES WERE REWORKED.	181.0	49.7	96.8	JUN 78	OCT 80

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
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PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	PRES- ENT PROJECTED COMPLETE DATE	PRES- ENT PROJECTED COMPLETE DATE
5 78 6654	NDT FOR QC IN MFG OF ADVANCED FRAGMENTING STEEL SHELLS THE DEMONSTRATION OF THE PROTOTYPE INSPECTION STATION WAS COMPLETED. THE STATION WAS SHIPPED TO ARRADCOM PRODUCT ASSURANCE DIRECTORATE. THIS STATION WILL BE INSTALLED IN THE NONDESTRUCTIVE TESTING LABORATORY AT ARRADCOM	590.0	540.0	26.7	JAN 80	SEP 80
5 77 6678	EVALUATION OF AQUA QUENCH UNDER PRODUCTION CONDITIONS A CONTRACT WAS AWARDED TO SAAP FOR AQUA QUENCH STUDIES ON THE 155MM M107 AND M483 PROJECTILES. QUENCH CRACKING WAS EXPERIENCED IN THE NOSE OF THE M107 AND IN THE ROTATING BAND AREA OF THE M483 PROJECTILES.	300.0	275.8	24.2	MAR 78	DEC 20
5 79 6682	SIMULATION OF AMMUNITION PRODUCTION LINES SIMULATION OF AMMUNITION METAL PARTS PRODUCTION LINES CONTINUES. INFORMATION OBTAINED FROM PROEOUTS AT NORRIS IND. AND NATIONAL PRESTO WAS USED TO SIMULATE THE M483 LINE AT MISSISSIPPI AAP.	170.0		142.0	NOV 80	FEB 81
5 78 6683	PRODUCTION OF TUNGSTEN BASE ALLOY PENETRATORS FOR AP MUNIT SMALL SCALE BALLISTIC TESTING HAS BEEN COMPLETED AND REPORTED. DATA FROM PRIOR TESTING IS BEING COORDINATED WITH THESE TEST FIRING RESULTS.	527.0	330.0	183.6	AUG 79	AUG 80
5 78 6693	BALL PROPELLANT DETERRENT COATING-CAM RELATED ALL EFFORTS ARE COMPLETE WITH THE EXCEPTION OF A PORTION OF THE CONTROL SYSTEM PROCUREMENT.	167.0	32.5	134.5	AUG 80	SEP 80
5 79 6693	BALL PROPELLANT DETERRENT COATING-CAM RELATED EXPERIMENTS TO DETERMINE EFFECTS OF DETERRENT CONC. TEMP AND RESID SOLV LEVEL ON DEPTH OF DETERRENT PENETRATION ARE COMPLETE. MRC CORP SELECTED FOR FABRICATION, INSTALLATION, AND TESTING OF THE PROTOTYPE CONTROL SYSTEM.	171.0	65.5	90.6	NOV 80	MAY 81
5 79 6716	MATH MODEL OF FORMING OPERATIONS FOR ARTILLERY DESIGN MATHEMATICAL MODELING OF THE PIERCING, CABAGING AND BLOCKING OPERATION AND THE COMPUTER CODING OF THESE MODELS ARE NEAR COMPLETE. PLANNING FOR PIERCING, CABAGING AND BLOCKING CONFIRMATION TESTS ARE underway.	306.0	270.0	35.0	JUN 80	NOV 80
5 78 6736	TECH READINESS ACCEL THRU COMPUTER INTEGRATED MFG (CAD) NO NEW ACCOMPLISHMENTS TO REPORT. FOR THIS REPORT PERIOD, UNDER THIS FISCAL YEAR OF FUNDING. REFERENCE IS MADE TO PROJECTS 679 6736 AND 680 6736.	100.0	31.0	69.0	NOV 78	DEC 80
5 79 6736	TECH READINESS ACCEL THRU COMPUTER INTEGRATED MFG (CAD) TRACIM ARCHITECTURE OF MANUFACTURING COMPLETED FOR M483 AND M735 PROJECTILE METAL PARTS. ALL MFG ACTIVITIES WERE COVERED IN FACTORY MODELS. COMPOSITE MODEL WAS INITIATED. DATA BASE SYSTEM DESIGN WAS BEGUN FOR A TOOLING WEDGE.	396.0	294.0	81.0	SEP 79	SEP 80

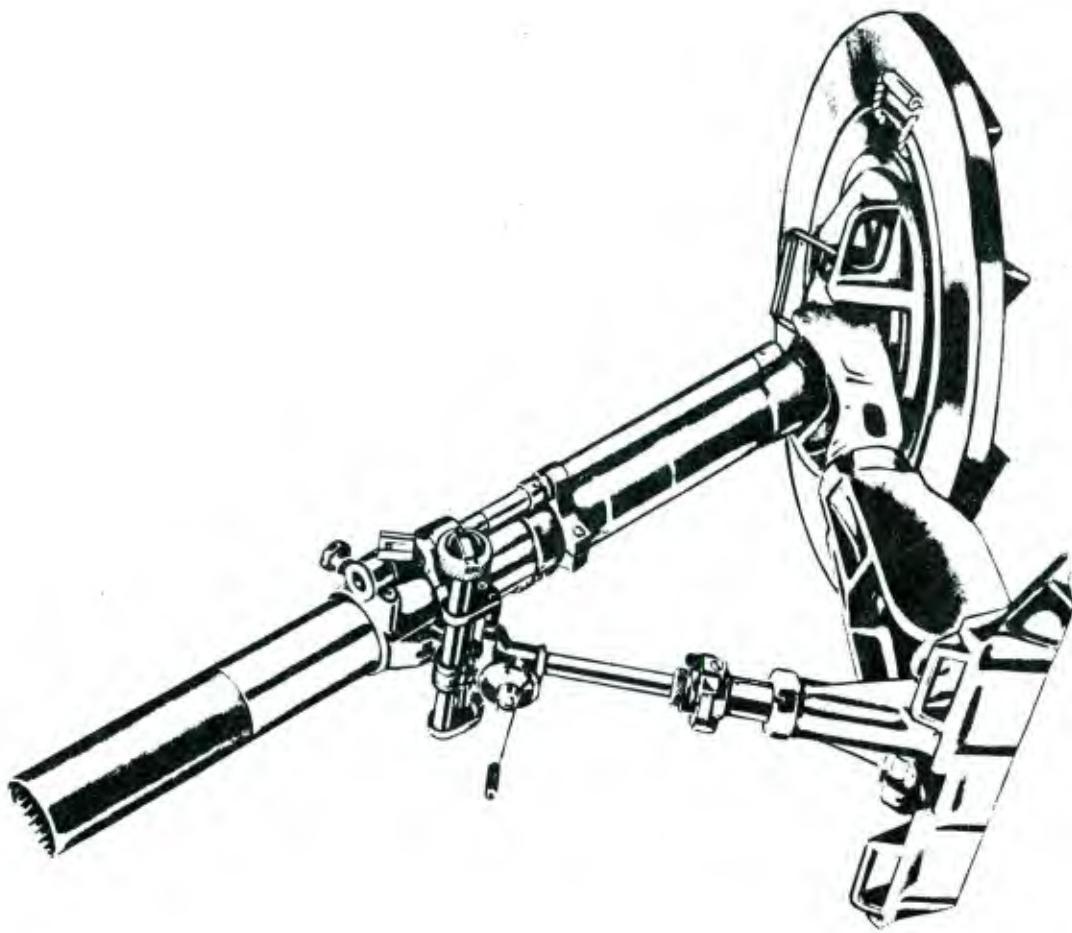
SUMMARY PROJECT STATUS REPORT  
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PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
5 80 6736	TECH READINESS ACCEL THRU COMPUTER INTEGRATED MFG (CAM) CONTRACT PACKAGES ARE BEING PROCESSED. PRELIMINARY PLANNING FOR TECHNOLOGY TRANSFER INTO AMMUNITION MFG OPERATIONS WAS INITIATED.		315•0	26•0	OCT 81	OCT 81
5 79 6738	USE OF ULTRA-HI SURFACE SPEEDS F/METAL REMOVAL, ARTY SHELL PLASMA ARC EQUIPMENT WAS INSTALLED ON A GUN TUBE LATHE AT WATERLIET AND SEVERAL MACHINE TRIALS WERE MADE. OTHER MACHINING STUDIES WITH STEELS COMMONLY USED IN ARTILLERY SHELLS HAVE BEEN STARTED TO DETERMINE THE EFFECT OF USING HIGHER SURFACE SPEEDS.		181•0	50•0	SEP 80	SEP 80
5 80 6738	ULTRA-HIGH SPEED METAL REMOVAL, ARTILLERY SHELL PLASMA ARC EQUIPMENT WAS INSTALLED ON A GUN TUBE LATHE AT WATERLIET AND SEVERAL MACHINE TRIALS WERE MADE. OTHER MACHINING STUDIES WITH STEELS COMMONLY USED IN ARTILLERY SHELLS HAVE BEEN STARTED TO DETERMINE THE EFFECT OF USING HIGHER SURFACE SPEEDS.		297•0	99•9	4•0	AUG 81
5 78 6748	SCAMP POLLUTION ABATEMENT EQUIPMENT WAS INSTALLED. OPERATOR TRAINING WAS BEGUN. EQUIPMENT DEBUG AND TESTING WAS BEGUN IN MAY 80. SOME INITIAL DEBUGGING PROBLEMS WERE ENCOUNTERED AND ARE BEING RECTIFIED AT THIS TIME. SEE REPORT FOR PROJECT 578 6748.		310•0	193•5	94•4	JAN 81
5 79 6748	SCAMP POLLUTION ABATEMENT METHODS FOR ORIENTING AND FEEDING SMALL CAL ANMO PROJECT EFFORTS WERE DELAYED DUE TO COST GROWTH FUNDING REQUEST AND THE SUBSEQUENT RENEGOTIATION OF A CONTRACT MOD. A FINAL REPORT FROM GULF & WESTERN IS EXPECTED BY 31 OCT 80.		77•0	50•0	24•3	AUG 80
5 78 6753	DRYING OF LOW DENSITY BALL PROPELLANT A HAZARDS ANALYSIS OF THE PRELIMINARY AND FINAL DESIGNS OF THE FLUID BED DRYER IS COMPLETE. THE FINAL REPORT OF THAT ANALYSIS IS BEING REVISED AND WILL BE RESUBMITTED IN JUNE 1980.		400•0	316•0	76•0	MAR 79
5 78 6760	DRYING OF LOW DENSITY BALL PROPELLANT FABRICATION OF THE FLUID BED DRY IS NEARLY COMPLETE. ACCEPTANCE TESTING AND TRAINING ARE SCHEDULED FOR JUNE 1980. INSTALLATION OF THE FLUID BED DRYER HAS BEEN ESTIMATED AND IS BEING INSTALLED.		118•0	13•5	103•6	AUG 81
5 79 6760	MANUFACTURING METHODS FOR APDS PROJECTILE A FOUR CAVITY MOLD IS BEING FABRICATED FOR IN PLACE MOLDING THE PLASTIC SABOT AROUND THE METAL BASE AND PENETRATOR. COMPLETION IS EXPECTED IN JULY 1980. THE HYDRAULIC, PNEUMATIC AND ELECTRICAL CONTROLS FOR THE INJECTION MOLD SYSTEM HAVE BEEN DESIGNED		101•0	76•0	14•7	JAN 81
5 78 6774			300•0	249•0	51•0	JAN 81
					51•0	NOV 79

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
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PROJ No.	TITLE + STATUS	AUTHO-RIZED	CONTRACT VALUES (\$000)	EXPENDED MATERIAL (\$000)	ORIGINAL AND MATERIAL (\$000)	LABOR AND MATERIAL (\$000)	PROJECTED COMPLETE DATE	PRESENT COMPLETE DATE
5 79 6774	MANUFACTURING METHODS FOR APDS PROJECTILE THIS REDUCED SCOPE PROGRAM SHOWS 1-1/2 YEARS SLIPPAGE. IT IS UNLIKELY THAT THE EQUIPMENT FABRICATION IS NOW COMPLETE THEREFORE ADDITIONAL SLIPPAGE IS OCCURRING.		895.0	711.8	84.7	NOV 79	JAN 81	

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
PROJECT NUMBER: 5 79 6774  
PROJECT TITLE: MANUFACTURING METHODS FOR APDS PROJECTILE  
SCOPE: THIS REDUCED SCOPE PROGRAM SHOWS 1-1/2 YEARS SLIPPAGE. IT IS UNLIKELY THAT THE EQUIPMENT FABRICATION IS NOW COMPLETE THEREFORE ADDITIONAL SLIPPAGE IS OCCURRING.



**ARMAMENT R&D COMMAND  
ARMAMENT MATERIEL READINESS COMMAND  
(ARRADCOM, ARRCOM)  
(WEAPONS)**

## ARRCOM - ARRA DCOM (WEAPONS)

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT ALLOCATED ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING EXPENDED ( \$ )	REMAINING ( \$ )	* * * * *
				EXPENDED	REMAINING			
73	1	536,000	369,900	369,900 (100%)		166,100	127,700 ( 76%)	
74	0	0	0	0 ( 0%)		0	0 ( 0%)	
75	2	270,000	193,100	193,100 (100%)		76,900	75,500 ( 98%)	
76	1	350,000	285,300	239,000 ( 83%)		64,700	30,800 ( 47%)	
77	0	0	0	0 ( 0%)		0	0 ( 0%)	
77	10	2,764,300	1,209,000	680,000 ( 56%)		1,555,300	1,235,800 ( 79%)	
78	11	2,078,800	747,700	698,100 ( 93%)		1,331,100	566,600 ( 42%)	
79	22	3,249,000	712,400	219,800 ( 30%)		2,536,600	1,257,900 ( 49%)	
80	31	5,930,500	105,300	0 ( 0%)		5,825,200	374,600 ( 6%)	
81	0	0	0	0 ( 0%)		0	0 ( 0%)	
82	0	0	0	0 ( 0%)		0	0 ( 0%)	
<b>TOTAL</b>	<b>78</b>	<b>15,178,600</b>	<b>3,622,700</b>	<b>2,399,900 ( 66%)</b>		<b>11,555,900</b>	<b>3,668,900 ( 31%)</b>	

AUTHORIZED FUNDING      CONTRACT ALLOCATED 24%      INHOUSE REMAINING 76%

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PROJ' No.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLET-E DATE	PRESENT PROJECTED COMPLETE DATE
6 78 3901	MANUFACTURE OF FLUIDIC AMPLIFIERS BY COLD FORMING ALL TECHNICAL WORK WITHIN THE FUNDING AVAILABLE HAS BEEN COMPLETED. A DRAFT OF THE FINAL REPORT HAS BEEN PREPARED.	290•0	166•0	120•0	SEP 79	JUL 80
6 80 3901	MANUFACTURE OF FLUIDIC AMPLIFIERS BY COLD FORMING (PHASE 2) ***** DELINQUENT STATUS REPORT *****	343•0				
6 73 7087	APPL. OF HIGH FREQ. INDUCTION HEATING FOR HOT COIL SPRINGS STEEL BARS FOR THE FABRICATION OF THE XM-1 RECOIL SPRING AND SPRING NO. 5172634 FOR THE M104-A1 WERE PROCURED. MANDRELS FOR THESE TWO SPRINGS HAVE BEEN FABRICATED.	536•0	369•9	127•7	JUL 75	SEP 81
6 77 7201	ARTILLERY WEAPON FIRING TEST SIMULATOR THE EQUIPMENT FOR THE SECOND SIMULATOR HAS BEEN BUILT AND DELIVERED. INSTALLATION IS UNDERWAY. UPON COMPLETION OF INSTALLATION, FINAL INSPECTION AND ACCEPTANCE TESTING WILL BE CONDUCTED.	620•0	689•7	81•5	OCT 78	SEP 80
6 79 7213	HIGH SPEED CHROME PLATING TECHNIQUE THE AUTOMATED SOLUTION FLOW SYSTEM HAS BEEN INSTALLED AND TESTED. THE FABRICATION OF ANODE AND CATHODE FIXTURES HAS BEEN COMPLETED AND TESTED.	199•0	10•0	134•5	DEC 81	SEP 81
6 77 7313	SIMULATOR FOR PRODUCTION TESTS OF WEAPONS- CAM THIS PROJECT IS NEARING COMPLETION. THE FINAL REPORT IS DUE IN SEPTEMBER 80.	215•0	85•0	120•0	DEC 77	SEP 80
6 79 7317	OPTIMIZATION OF STEP THREAD TOOLING A FOURTH SET OF STEP THREAD CUTTER BLADES CONFORMING TO DRAWING WTV-F2-068 WAS PURCHASED. THE BLADE MATERIAL IS UDDEHOLM HSS UHB ASP 60. DUE TO MAINTENANCE DOWNTIME ON THE STEP THREADING MACHINE, TESTING HAS BEEN DELAYED.	75•0	5•2	26•1	NOV 80	MAY 81
6 79 7482	MODIFIED RIBBON RIFLING GENERATING MACHINE ONE PROPOSAL WAS RECEIVED AND FOUND TO BE TECHNICALLY ACCEPTABLE BY WATERVLIEF ARSENAL'S TECHNICAL REVIEW BOARD. IT HAS BEEN SENT TO PROCUREMENT FOR THE SECOND STEP OF THE PROCUREMENT PROCESS.	136•0		20•2	APR 81	SEP 81
6 77 7485	APPLICATION OF CHEMICAL PROCESSES TO IMPROVE SURFACE FINISH THE PROCESSING FACILITY HAS BEEN USED EXTENSIVELY FOR PLATING 120MM XM256. CAUSING A DELAY OF THE FINAL PHASE OF THE STUDY RELATING TO THE ELECTROPOLISHING OF 105MM SPECIMENS.	309•0		289•0	FEB 78	SEP 80
6 75 7532	SINGLE POINT CUTTING FOR METAL + PLASTIC OPTICS THE DIAMOND-TURNING MACHINE ACQUIRED VIA THIS PROJECT HAS BEEN INSTALLED AT A MICOM SUBCONTRACTOR LOCATION. TOOLING PROBLEMS HAVE PREVENTED THE INITIATION OF EXPERIMENTAL OPERATIONS.	140•0	98•1	40•5	JUN 76	AUG 80

**S U M M A R Y P R O J E C T S T A T U S R E P O R T**  
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PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
6 79 7555	DYNAMIC PRESSURIZATION STAND, SLIDE BLOCK BREECH MECH THE CONTRACT FOR THE SLIDE BLOCK BREECH MECHANISM GYMNASTICATOR INSTRUMENTATION WAS AWARDED IN JAN 1980. THE DYNAMIC PRESSURIZATION STAND STRUCTURAL AND ELECTRICAL COMPONENTS HAVE BEEN RECEIVED. ONLY THREE HYDRAULIC COMPONENTS HAVE NOT BEEN RECEIVED.	121•0	63•5	3•2	SEP 81	SEP 81
6 76 7580	PILOT AUTO SHOP LOADING AND CONTROL SYSTEM- CAN ALL MAJOR DESIGN DECISIONS REQUIRED TO DEFINE THE REMAINING MATERIAL REQUIREMENTS PLANNING, CAPACITY PLANNING, AND COST CONTROL WERE FINALIZED. INITIAL PROGRAMMING & CUSTOMIZATION OF MRP AND CAPACITY PLANNING SOFTWARE WERE COMPLETED OR BEING TESTED.	350•0	285•3	30•8	SEP 78	JUN 81
6 75 7589	AUTO TARGETING SYS FOR PRODUCTION TEST OF AUTO WPN + AMMO THE ACCUBAR SYSTEM IS INSTALLED AND IS OPERATIONAL FOR SMALL CALIBER WEAPON TESTING. A BAFFLING SYSTEM WILL BE INSTALLED IN THE WARE SIMULATION CENTER RANGE IN OCT 80 FOR TESTING LARGE CALIBER WEAPONS. FINAL REPORT WILL BE PREPARED AT THAT TIME.	130•0	95•0	35•0	SEP 76	OCT 80
6 79 7605	CHEMICALLY BONDED SAND FOR CLOSE TOLERANCE CASTING DELAYS HAVE BEEN ENCOUNTERED IN PURCHASING CORE MAKING SYSTEM. THE PROCUREMENT PROBLEMS HAVE NOW BEEN SOLVED.	127•0	22•0	27•4	MAR 80	OCT 80
6 80 7605	CHEMICALLY BONDED SAND FOR CLOSE TOLERANCE CASTING DISCUSSION WITH EQUIPMENT MANUFACTURERS HAS TAKEN PLACE.	174•0			FEB 82	FEB 82
6 77 7644	APPLICATION OF INTEGRAL COLOR ANODIZE FOR ALUMINUM ICA TREATED COUPONS WITH SUPERIOR COATINGS WITH RESPECT TO ABRASION RESISTANCE, CORROSION RESISTANCE, COATING UNIFORMITY AND LIGHT FASTNESS WERE FURTHER EVALUATED FOR THEIR HEAT RESISTANCE. M16 RECEIVERS WILL BE HARDCOAT ANODIZED AND TEST FIRED.	75•0			50•5 APR 78	SEP 80
6 78 7710	INJECTION MOLDING OF RUBBER OBTURATOR PADS WORK CONTINUED TO ESTABLISH MOLDING CONDITIONS THAT WOULD RESULT IN PROPERTIES MATCHING THOSE OF COMPRESSION MOLDED PADS. INITIAL PADS DISPLAYED UNEVEN PROPERTIES ATTRIBUTABLE TO UNEVEN DISTRIBUTION. THE MOLD IS BEING MODIFIED TO SOLVE THIS PROBLEM.	77•0			26•4 JUL 79	SEP 81
6 77 7711	ELECTROPOLISHING PROCESS MODELS FOR SMALL BORE WEAPONS VARIOUS ELECTROPOLISHING SOLUTIONS OF DIFFERENT COMPOSITIONS WERE EVALUATED. PROCESS SPECIFICATION AND THE FINAL REPORT WILL BE PR EPARED DURING THE NEXT REPORTING PERIOD.	75•0			73•6 FEB 78	AUG 80
6 77 7714	MULTI-MODE WEAPON + MOUNT IMPEDANCE SIMULATOR (CAM) THIS PROGRAM CONTINUES TO SLIP, CURRENTLY DUE TO A LABOR STRIKE. THE SIMULATOR IS APPROXIMATELY 85 PERCENT COMPLETED WITH ACCEPTANCE TESTING SCHEDULED TO BEGIN IN AUGUST 1980.	335•0	245•0	69•6	OCT 79	MAR 81

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6 79 7724	GROUP TECHNOLOGY OF WEAPON SYSTEMS THIS PROJECT WAS BASICALLY A FEASIBILITY STUDY DIRECTED TOWARD IMPLEMENTING A G CLASSIFICATION AND CODING/GT SYSTEM AT WVT ARSENAL. RESULTS WERE PROMISING AND THE ESTABLISHMENT OF A CFLL IS PLANNED.	83•0	31•4	16•0	FEB 80	SEP 81	
6 78 7726	APPLICATION OF COLD AND WARM ROTARY FORGING NO WORK ACCOMPLISHED DURING THIS PERIOD. FORGING TRIALS SCHEDULED FOR NOV 79, FEB 80, MAY 80 HAVE BEEN POSTPONED BY OPERATIONS.	110•0	16•5	44•2	SEP 79	SEP 80	
6 79 7726	APPLICATION OF COLD AND WARM ROTARY FORGING NO WORK ACCOMPLISHED DURING THIS PERIOD. FORGING TRIALS RESCHEDULED FOR JULY 80. NEW MILESTONE ADDED TO ESTABLISH COMPUTER PROGRAM FOR SIMULATION OF INTEGRATED LINE.	108•0	29•5	6•6	SFP 80	SEP 81	
6 79 7727	RECYCLING OF SCRAP GUN TUBES BY ROTARY FORGING THREE 175MM AND ONE 8-INCH SCRAP TUBES ARE READY FOR FORGING INTO 155MM M185 TUBES. THREE 175MM SCRAP TUBES, WHICH WILL EACH YIELD TWO 105MM M68 TUBES, ARE NOW BEING MACHINED, PREPARATORY TO FORGING. SAMPLE HEAT TREATING TESTS ARE COMPLETE.	237•0	10•0	151•4	JUL' 81	JUL 81	
6 79 7730	MANUFACTURE OF SPLIT RING BREECH SEALS A HYDRAULICALLY OPERATED KINKING MACHINE IS BEING PREPARED. ONE RING HAS BEEN EXPERIMENTALLY CUT BY A WIRE EDM AND THE RESULTS ARE BEING EVALUATED. IN ANTICIPATION OF THE ELIMINATION OR CONSOLIDATION OF VARIOUS OPERATION, ROUTING CHANGES WERE MADE.	137•0		36•5	JUN 80	MAR 82	
6 80 7730	MANUFACTURE OF SPLIT RING BREECH SEALS WORK ON THIS PROJECT WILL BEGIN UPON COMPIILATION AND EVALUATION OF THE WORK PERFORMED WITH PRIOR YEAR FUNDING.	363•0	0•3	3•9	DEC 82	DEC 82	
6 77 7744	IMPROVED MFG PARAMETERS FOR OPTICS REVISION OF SPEC MIL-0-13830 MUST WAIT UNTIL OTHER PROJECTS IN THE SCRATCH AND DIG AREA ARE COMPLETED. A CONSULTANT IS WRITING THE NEW FINAL REPORT TO BE REVIEWED BY PRODUCT ASSURANCE DIRECTORATE. REVISION OF THE SPEC WILL BE A STANDARDIZATION EFFORT	165•0		154•9	APR 78	NOV 80	
6 77 7745	DIAMOND TOOL FABRICATION CAPABILITY EVALUATION OF ITEK OPTICAL SYSTEMS DIVISION'S UNSOLICITED PROPOSAL HAS BEEN COMPLETED AND THE PROCUREMENT PACKAGE FOR A RESHAPING TECHNIQUE IS PARTIALLY COMPLETED.	112•0	50•0	61•3	MAR 78	JUL 81	
6 77 7753	NOISE SUPPRESSOR FOR POWDER TYPE RECOIL MECHANISM TESTING MA EXTENSIVE SLIPPAGE HAS OCCURED DUE TO THE TECHNICAL PROBLEM PRESENTED. A CONTRACTOR HAS BEEN IDENTIFIED AND A REQUEST FOR PROPOSAL ISSUED. A CONTRACT WILL BE AWARDED FOR THE FABRICATION OF THE NOISE REDUCTION DEVICE.	80•0		3•0	FEB 80	MAY 81	

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PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
6 78 7802	ESTABLISH MACHINE TOOL PERFORMANCE SPECIFICATIONS THE SUMMARY REPORT FOR THIS FIRST YEAR PROJECT WAS COMPLETED AND IS BEING REVIEWED. IMPROVEMENT IN MACHINE TOOL ACQUISITION IS ALSO DEPENDENT UPON MACHINE TOOL JUSTIFICATION, SELECTION AND VALIDATION IN PRODUCTION APPLICATIONS. 2ND YR WORK UNDERWAY.	195.0	161.5	25.0	DEC 79	SEP 80
6 79 7802	ESTABLISH MACHINE TOOL PERFORMANCE SPECIFICATIONS THE EVALUATION OF NC CONTROLS WAS COORDINATED WITH DIPEC. ALSO REVIEWED WERE THE LONG RANGE EFFECTS OF CONTROL MFRS QUITTING THE BUSINESS. DEVELOPMENT OF TESTING/VALIDATION PROCEDURES CONTINUED.	282.0	259.3	10.8	JUN 81	OCT 81
6 78 7807	PROGRAMMED OPTICAL SURFACING EQUIPMENT AND METHODOLOGY (CAM) EVALUATION OF UNIVERSITY OF ROCHESTER UNSOLICITED PROPOSAL HAS BEEN COMPLETED. THE PROCUREMENT PACKAGE IS BEING PROCESSED FOR CONTRACT AWARD. THIS PROJECT WILL MODIFY A CNC MACHINE FOR CURVE GENERATING/RADIUS TRUEING OPERATIONS ON OPTICAL SURFACES.	134.0		24.2	DEC 79	APR 81
6 79 7807	PROGRAMMED OPTICAL SURFACING EQUIPMENT AND METHODOLOGY (CAM) NO SIGNIFICANT WORK ACCOMPLISHED. SEE PROJECT NO 6787807. THIS PROJECT WILL PRODUCE A CNC OPTICAL SURFACING CENTER FOR THE GRINDING/POLISHING OPERATIONS AND IN-PROCESS TESTING OF OPTICAL SURFACES	138.0		8.6	NOV 80	OCT 81
6 78 7808	LEAK DETECTION TECHNIQUES FOR SMALL SEALED FIRE CCN ASSM NO ADDITIONAL WORK HAS BEEN DONE IN THIS REPORT PERIOD DUE TO INSUFFICIENT FUNDS. ADDITIONAL FUNDS WERE REQUESTED.	86.0		78.2	APR 79	OCT 78
6 78 7840	PORTABLE MULTI-DEGREE-OF-FREEDOM SIMULATOR THE RFP WAS RELEASED DURING APR 80. A PREBIDDERS CONFERENCE WAS HELD ON 28 MAY. TECHNICAL PROPOSALS ARE DUE ON 20 AUG 80. IT IS PLANNED TO ISSUE A CONTRACT BEFORE JAN 1981.	389.0		48.0	JUN 80	SEP 82
6 80 7920	CONSERVATION OF CRITICAL MATERIALS FOR GUN TUBES A LITERATURE STUDY OF REDUCED CHROMIUM STEELS HAS BEEN CONDUCTED. JOB ORDERS HAVE BEEN WRITTEN FOR OBTAINING HEATS OF OTHER POTENTIAL REPLACEMENT STEELS.	236.0	5.0	7.5	SEP 81	SEP 81
6 80 7925	BORE EVACUATOR BORING TWO STD PROD MACHINES ADAPTABLE TO THIS PROJECT HAVE BEEN SECURED AND ARE PRESENTLY BEING STORED ON POST. PRELIMINARY DESIGN CONCEPTS ARE BEING EVALUATED TO DEFINE SUITABLE WORK HOLDING FIXTURES THAT WILL ADAPT TO THESE MACHINES.	111.0		0.3	MAR 82	MAR 82
6 80 7926	HOT ISOSTATIC PRESSING OF LARGE ORDNANCE COMPONENTS PROJECT ENGINEER IS VISITING HIP FACILITIES TO DETERMINE INTEREST IN THE PROGRAM.	216.0		6.8	JAN 82	JAN 82

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6 80 7927	GENERATION OF BASE MACHINING SURFACES AN ENGINEERING STUDY AND A TECHNIQUE SELECTION WERE STARTED DURING THIS PERIOD. THE ENGINEERING STUDY FOUND THAT ADDITIONAL OPERATIONAL SEQUENCING FLEXIBILITY IS REQUIRED. THE TECHNIQUE SELECTION CONTINUES FOR METHOD OF VISUAL VERIFICATION OF STOCK.	86.0		3.3	MAR 81	MAR 81
6 80 7928	ROBOTIZED BENCHING OPERATIONS EVALUATIONS OF 14 DIFFERENT MANUFACTURERS ROBOTS HAS BEGUN. TO DATE MOST OF THESE COMPANIES ROBOTS DO NOT SEEM AMENABLE TO SOLVING THE PROBLEM	113.0		2.6	AUG 81	AUG 81
6 77 7943	ANALYSIS FOR MODERNIZATION OF INDUSTRIAL OPERATIONS ROCK ISLAND ARSENAL STAFF SUPPLIED TECHNICAL DATA TO PRIME CONTRACTORS. TRAVELED FOR SELECTION OF CONTRACTOR TO PERFORM PRE-CONCEPT DESIGN IN SUPPORT OF FY84 MCA. REVISED FY82, FY83 MCA PLANS, PREPARED SHORT AND LONG RANGE PBS PLANS.	578.3	139.3	332.4	FEB 78	DEC 80
6 78 7943	ANALYSIS FOR MODERNIZATION OF INDUSTRIAL OPERATIONS NO TECHNICAL ACCOMPLISHMENTS WERE COMPLETED DURING THIS REPORT PERIOD.	441.6	400.7	28.0	JUN 79	OCT 80
6 79 7948	ESTABLISH CUTTING FLUID CONTROL SYSTEM DATA WAS GATHERED TO DOCUMENT THE CURRENT USE OF CUTTING FLUIDS AT ROCK ISLAND ARSENAL. FIVE PARTS WERE SELECTED AS TYPICAL ITEMS PRODUCED AT RIA, FOR DETAILED ANALYSIS. CONTACT WAS MADE WITH TWO CUTTING FLUID MANUFACTURERS TO OBTAIN CURRENT DATA.	150.0	107.9	31.0	FEB 80	SEP 80
6 80 7948	ESTABLISH CUTTING FLUID CONTROL SYSTEM PROGRESS IS BEING REPORTED ON PROJECT 679 7946.	158.0		1.4	SEP 81	SEP 81
6 79 7949	APPLICATION OF GROUP TECHNOLOGY TO RIA MFR (CAM) THE MICLASS SOFTWARE HAS BEEN IMPLEMENTED. APPROXIMATELY 2200 PARTS HAVE BEEN CODED. AN INITIAL ANALYSIS OF THE CODED PARTS WAS MADE. THIS PROJECT IS BASICALLY COMPLETED. DETAILED ANALYSIS WILL BE ACCOMPLISHED UNDER PROJECT 6 80 7949.	127.0	91.5	24.2	FEB 80	SEP 80
6 80 7949	APPLICATION OF GROUP TECHNOLOGY TO RIA MFG (CAM) THIS PROJECT IS A CONTINUATION OF 679 7949. THE MOST PROMISING GT APPLICATIONS AREAS WERE DEFINED AND SCHEDULED. INCLUDED ARE TASKS DIRECTED TOWARD PROCESS PLANNING AND EQUIPMENT REPLACEMENT. DEVELOPMENT OF A GROUP SCHEDULING SYSTEM IS UNDERWAY.	155.0		27.7	MAY 82	MAY 82
6 79 7963	GROUP TECH CELLULAR MFG FOR FC COMPONENTS ASSEMBLIES AN UPDATED VERSION OF MICLASS (CLASSIFICATION AND CODING/GROUP TECHNOLOGY SOFTWARE) WAS INSTALLED. A CONTRACT TO ACQUIRE AN AUTOMATED PROCESS PLANNING MODULE IS PLANNED.	188.0	75.0	40.2	JUL 80	MAR 81

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
 SUMMARY PROJECT STATUS REPORT  
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6 80 7963	GROUP TECHNOLOGY FOR FIRE CONTROL PARTS AND ASSEMBLIES UNDER PROJECT 6 79 7963 MICCLASS VERSION 2.0 HAS BEEN IMPLEMENTED AND A PROCESS PLANNING MODULE IS BEING ACQUIRED. THIS PROJECT IS CONDUCTING ANALYSIS OF FIRE CONTROL SUB-ASSEMBLIES TO ESTABLISH GROUP TECHNOLOGY SYSTEM REQUIREMENTS.	203.0	100.0	1.5	DEC 81	DEC 81	
6 79 7965	DIFFERENTIAL SCATTEROMETRY FOR MICROFINISH SURFACES ASSEMBLY OF BREADBOARD SYSTEM IS COMPLETED.	100.0		100.0	MAR 80	DEC 80	
6 80 7985	SMALL ARMS WEAPONS NEW PROCESSES PRODUCTION TECHNOLOGY 15 30MM GUN BARREL BLANKS WERE SENT TO GFM. THE RIFLING WAS COLD ROTARY FORGED AND THEY ARE BEING RETURNED FOR FINISH MACHINING. THE SOW AND RFP ARE COMPLETE TO MAREMONT FOR EVALUATION OF BARREL MANUFACTURING PROCESSES. RESPONSE EXPECTED JUN 20, 1980.	349.5		52.0	MAY 81	MAY 81	
6 79 7990	IMPROVED, FABRICATION AND REPAIR OF ANODES THE DRAWINGS COVERING THE BASIC CONCEPT AND INDIVIDUAL DRAWINGS ARE NEAR COMPLETION.	250.0		81.0	JUN 81	APR 81	
6 79 8004	CO-DEPOSITION OF SOLID LUBRICANTS DURING ANODIZING HARDCOAT PROCESSES WERE EVALUATED BY ANODIZING IN ACID SOLUTIONS. EVALUATIONS WERE MADE TO DETERMINE IF THE LUBRIFICIOUS PARTICLES WERE DISPERSED THROUGHOUT THE COATING. A SANFORD HARDCOAT PROCESSOR CAPABLE OF COATING WEAPON COMPONENTS WAS INSTALLED.	120.0		101.4	JAN 80	JAN 81	
6 80 8004	CO-DEPOSITION OF SOLID LUBRICANTS DURING ANODIZING VARIOUS ALUMINUM ALLOY WEAPON COMPONENTS FROM XM198, 155MM HOWITZER AND M161 RIFLE ARE BEING PROCURED. THE ANODIZING BATHS ARE BEING SCALED UP IN VOLUME FROM LABORATORY TO PRODUCTION SIZES.	121.0		21.6	JAN 81	JAN 81	
6 79 8005	ESTABLISHMENT OF THE SPACE MECHANICAL PLATING PROCESS EQUIPMENT FOR PLATING WAS RECEIVED AND SET-UP FOR OPERATION. METAL PARTS WERE OBTAINED FOR COATING PROCESSING AND EVALUATION. EVALUATION OF SOME MATERIALS AND SUBSTRATE VARIABLES WERE MADE.	150.0		117.5	DEC 79	SEP 80	
6 79 8010	PRODUCTION OF ACOUSTIC MICROWAVE FILTERS HIGH RESOLUTION E-BEAM SUBSYSTEM INSTALLED AND OPERATIONAL AT ARRADCOM, DOVER, NJ. PERFORMANCE EVALUATION CONTINUES. PROCEDURE FOR APPLICATION, EXPOSURE AND DEVELOPMENT OF ELECTRON RESIST HAS BEEN ESTABLISHED.	233.0		228.0	JUN 80	DEC 80	
6 80 8010	PRODUCTION OF ACOUSTIC MICROWAVE FILTERS (CAM) THE FLYING SPOT SCANNER HAS BEEN CHECKED OUT WITH A TEST PATTERN USED FOR THE RECORDING CRT. THE EQUIPMENT INVOLVED IN THE PILCT LINE IS PARTIALLY ASSEMBLED.	150.0		90.0	NOV 80	NOV 80	

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6 80 8017	POLLUTION ABATEMENT PROGRAM RIA INITIATED A PROGRAM TO ESTABLISH WHAT IMPROVEMENTS COULD BE MADE IN THE DISPOSAL OF OILS AND SOLID WASTES. FIVE AREAS OF POSSIBLE IMPROVEMENTS WERE IDENTIFIED. THE MOST URGENT WAS THE DISPOSAL OF WATER BASE CUTTING FLUIDS. RIA DECIDED ON RECYCLE.	171.0		111.3	JAN 81	JAN 81
6 80 8024	HIGH SPEED ABRASIVE BELT GRINDING THE FIRST DRAFT OF THE SPECIFICATION WAS COMPLETED AND CIRCULATED WITHIN THE ARSENAL.		324.0	9.1	SEP 82	SEP 82
6 79 8025	ELECTRONIC PROFILE READOUT GAGE FOR POWDER CHAMBER CONTROLS THE SPECIFICATION FOR THE GAGING SYSTEM HAS BEEN COMPLETED. SOLICITATION WAS ISSUED IN JUNE. BID OPENING SCHEDULED FOR 23 JULY 80. THE GAGE WILL BE ELECTRONICAL AND WILL POSSESS THE LATEST STATE OF THE ART FEATURES.	106.0		34.1	JUL 80	AUG 81
6 80 8035	COATING TUBE SUPPORT SLEEVES WITH BEARING MATERIALS REQUIRED PROPERTIES FOR BEARING MATERIALS WERE REVIEWED. PROBLEMS EXPERIENCED IN THE EXISTING PROCESS WERE INVESTIGATED. TEST PLATES FOR MECHANICAL TESTING OF QNAW SPECIMENS WERE PREPARED.	180.0		22.8	MAR 81	MAR 81
6 80 8036	WEAPON AIMING SYSTEM FOR THE 6-DOF SIMULATOR THE INITIAL WORK WAS THE SELECTION OF A SUITABLE TELEVISION CAMERA FOR MOUNTING ON THE WEAPON SYSTEM. AFTER A CAREFULL REVIEW OF VARIOUS TV CAMERAS, A TENTATIVE SELECTION WAS MADE.		126.0	5.0	SEP 81	SEP 81
6 78 8047	PASS THRU STEADY RESTS FOR TUBE TURNING DESIGN REQUIREMENTS HAVE BEEN SOLIDIFIED FOR THE CONSTRUCTION OF AN AUTOMATIC ELECTRONICALLY ACTUATED REST SYSTEM WITH FULL CAPABILITIES FOR ALL REQUIREMENTS PREVIOUSLY SPECIFIED. MACHINE DESIGN HAS BEEN FINALIZED. FINAL ASSEMBLY DRAWINGS ARE APPROXIMATELY 75% COMPLETE.		139.0	83.5	SEP 80	SEP 80
6 80 8047	PASS THRU STEADY RESTS FOR TUBE TURNING DESIGN REQUIREMENTS HAVE BEEN SOLIDIFIED FOR THE CONSTRUCTION OF AN AUTOMATIC ELECTRONICALLY ACTUATED REST SYSTEM WITH FULL CAPABILITIES FOR ALL REQUIREMENTS PREVIOUSLY SPECIFIED.		269.0	5.7	JUL 83	JUL 83
6 78 8048	IMPROV INSPECTION TECH FITTINGS + PREFORMS F/ROTARY FORGING EVALUATION CONTRACTS WERE AWARDED TO THREE CONTRACTORS. EACH CONTRACTOR STATED THEY HAD THE CAPABILITY TO DETECT FLAWS IN ACCORDANCE WITH THE PERFORMANCE CRITERIA. THE PROCUREMENT REQUEST FOR THE ULTRASONIC EQUIP HAS BEEN FORWARDED TO PROCUREMENT.		113.0	2.1	64.2	SEP 80
6 78 8049	MANUFACTURING PROCESSES ENERGY CONSERVATION PROGRAM THE ENERGY AUDIT OF MACHINERY ENGAGED IN MANUFACTURING PROCESSES IS CONTINUING. PRESENTLY ABOUT 35% OF THESE MACHINES HAVE BEEN EXAMINED AND THE ELECTRICAL POWER CONSUMPTION DATA SUPPLIED TO OPERATIONS DIRECTORATE.		104.0	0.9	24.9	DEC 79

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6 80 8051	APPLICATION AND CONTROL OF MACHINE TOOLS (CAM) PROJECT REQUIREMENTS WERE DETAILED AND REVIEWED WITH PERSONNEL OF DIPEC, ORXIB AND ROCK ISLAND ARSENAL. VARIOUS PRIVATE COMPANY MAINTENANCE AND RELIABILITY EFFORTS WERE STUDIED. WRITING OF THE SOW BEGAN.	1000.0		1•2 AUG 81	AUG 81	
6 80 8054	OPTICAL SCRATCH AND DIG STANDARDS FOR FIRE CONTROL SYSTEMS ***** DELINQUENT STATUS REPORT *****	185.0		24•1 SEP 82	SEP 82	
6 80 8057	DUAL RIFLING BROACH REMOVAL SYSTEM PRE-DESIGN ENGINEERING DETERMINATIONS WERE MADE ON REQUIREMENTS, CONCEPTS, FEASIBILITY AND AVAILABILITY OF MATERIAL. ENGINEERING DESIGN OF COMPONENTS IS IN PROGRESS.	245.0		24•1 SEP 82	SEP 82	
6 80 8059	SALVAGE OF CANNON COMPONENTS BY ELECTRODEPOSITION THE WORKLOAD RELATING TO THE CHROMIUM PLATING OF THE 120 MM XM256 HAS DELAYED WORK ON THIS PROJECT. SOME MATERIAL AND EQUIPMENT HAVE BEEN ORDERED.	152.0		7•0 JUN 81	JUN 81	
6 80 8060	IMPROVED MFG PROCESSES FOR FINAL INSPECTION OF CANNON TUBES THE MATERIAL HANDLING EQUIPMENT INFORMATION HAS BEEN ACQUIRED. THE PROCUREMENT ACTIVITY STARTED IN MAY 1980. THE DELAY IN THE RECEIPT OF THE FUNDS HAS RESULTED IN A THREE MONTH SLIPPAGE OF THE PROJECT.	268.0		1•7 DEC 81	DEC 81	
6 80 8062	RAPID INTERNAL THREADING THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.	69.00				
6 79 8104	IMPROVED BREACH BLOCK MANUFACTURING THIS PROJECT IS DIRECTED TOWARD DEVELOPING A FACILITY EMPLOYING FMS PRINCIPLES INCORPORATING NONSYNCHRONOUS PUN CONCEPTS. CURRENT WORK IS DIRECTED TOWARD DEVELOPING A PROCUREMENT STRATEGY.	100.0		17•9 JAN 81	JAN 81	MAY 81
6 80 8105	ESTABLISH ROUGH THREAD BLANKS, 8-INCH M201 BUSHING INVESTIGATED THE DETAILS OF THE MFG PROCESS BEING INCORPORATED TO PRODUCE ROUGH THREAD BLANKS ON BOTH THE BREECHBLOCK AND BUSHING. A DECISION HAS BEEN MADE TO EXPEDITE STOCK REMOVAL BY A COMBINATION OF MILLING AND MULTIPLE SLOTTING.	88.0		5•7 SEP 81	SEP 81	
6 80 8106	LARGE CALIBER POWDER CHAMBER BORING ENG STUDY COMPLETED AND DECISION MADE TO USE ELECTRO-MECHANICAL PRINCIPLES INSTEAD OF HYDRAULICS. CONCEPT DRAWING WERE MADE. CONSULTATIONS WERE HELD WITH A FEW MAJOR CUTTING TOOL MFRS CONCERNING DEVELOPMENT OR EXPANSION OF PROJECT CONCEPTS.	59.0		11•7 NOV 81	NOV 81	

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6 79 8107	CREEP FEED CRUSH FORM GRINDING A CONTRACT HAS BEEN AWARDED TO MIDWEST PRECISION SERVICES TO CONDUCT EXPERIMENTAL CREEP FEED TESTS ON 6 BILLETS OF FS4340 MATERIAL	82.0	7•1	41.3	MAY 80	JAN 81
6 80 8107	CREEP FEED CRUSH FORM GRINDING A VARIETY OF FIXTURE DESIGN CONCEPTS HAVE BEEN INITIATED. ENGINEERING CONCEPTS AND SPECIFICATIONS FOR ALL MAJOR CAPITAL EQUIPMENT AND PERIPHERAL SUPPORT EQUIP ARE CURRENTLY BEING DEVELOPED.	348.0		10.4	MAY 83	MAY 83
6 80 8208	MATERIAL HANDLING WATERVLIET IS IN THE PROCESS OF LETTING A CONTRACT FOR CONSULTANT SERVICES.	113.0		6.7	SEP 82	SEP 82
6 80 8209	PILOT PRODUCTION OF GRADIENT INDEX OPTICS THE CONTRACTUAL SCOPE OF WORK WAS COMPLETED. A CONTRACTOR WILL SCALE UP EXISTING LABORATORY ION DIFFUSION TECHNIQUES FOR AXIAL GRADIENT INDEX OPTICAL ELEMENTS TO MAKE LARGE QUANTITY PRODUCTION POSSIBLE. IS FOR A FIRE CONTROL SIGHTING SYSTEM.	213.0		30.7	DEC 83	DEC 83
6 80 8342	KEYWAY MILLING MACHINE WORK WAS STARTED ON EQUIPMENT DESIGN. A THREE SPINDLE RISE AND ALL TYPE MILLING MACHINE IS CURRENTLY BEING DESIGNED.	242.0		2.9	JAN 82	JAN 82



Fort Belvoir, Va.



MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND

CURRENT FUNDING STATUS: 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS (\$)	CONTRACT FUNDING		REMAINING (\$)	INHOUSE FUNDING EXPENDED (\$)
			ALLOCATED (\$)	EXPENDED (\$)		
77	1	750,000	742,000	709,000 ( 95%)	8,000	0 ( 0X )
78	3	873,000	731,000	549,000 ( 75%)	142,000	140,000 ( 98X )
79	9	2,528,000	2,196,000	559,500 ( 25%)	332,000	147,400 ( 44X )
80	6	1,036,900	152,200	0 ( 0X )	886,700	42,600 ( 4X )
81	0	0	0	0 ( 0X )	0	0 ( 0X )
82	0	0	0	0 ( 0X )	0	0 ( 0X )
TOTAL	19	5,189,900	3,821,200	1,817,500 ( 47%)	1,368,700	330,000 ( 24X )

#### AUTHORIZED FUNDING

INHOUSE REMAINING 26%

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCM1-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
E 79 3532	MOLTEN SALT Li/Cl BATTERY NEW CELLS WITH FELT SEPARATORS HAVE AN AVERAGE CYCLE LIFE OF 277 CYCLES WITH A DECLINE IN SPECIFIC ENERGY OF 7•2 PCT. CYCLE LIFE OF AT LEAST 800 CYCLES TO 20 PCT DECLINE IS ANTICIPATED. THERMAL CYCLING HAS SHOWN NO LASTING EFFECT ON CELL PERFORMANCE.	285.0	280.0	1.0	AUG 80	APR 81
E 79 3592	IMPROVED GRAPHITE REINFORCEMENT-PHASE 3 DESIGN PARAMETERS ARE NEARING COMPLETION FOR A PILOT SCALE PLANT TO PRODUCE IMPROVED GRAPHITE FIBER. ADDITIONAL CONTRACTUAL EFFORT IS BEING NEGOTIATED TO DETERMINE FEASIBILITY OF USING LOW COST PITCH DERIVED PRECURSOR RATHER THAN PAN FIBER.	282.0	247.5	16.0	SEP 80	SEP 80
E 78 3604	SOLID STATE POWER SWITCH DELTA ELECTRONIC CONTROL CORP CONVERTED A BRASSBOARD DESIGN INTO A PRODUCTION DESIGN. SEVERAL SAMPLE SWITCHING DEVICES HAVE BEEN PARTIALLY COMPLETED. DELAY WAS CAUSED BY FINANCIAL PROBLEMS. COMPANY WAS REORGANIZED.	350.0	295.0	55.0	JUN 80	APR 81
E 79 3604	SOLID STATE POWER SWITCH FOLLOW-ON TO ABOVE. FINANCIAL PROBLEMS HAVE BEEN RESOLVED THRU REORGANIZATION WITH ADDITIONAL FUNDING. PARTIALLY COMPLETED AND TESTED SWITCHES ARE EXPECTED TO BE DONE BY OCT 1980. CHIPS ARE ATTACHED TO A COMMON HEAT SINK.	85.0	54.0	21.0	JUN 81	APR 81
E 79 3605	TRANSCELENT-HIGH POWER-TRANSISTOR RCA ASKED TO END THE CONTRACT FOR BUSINESS REASONS. THE FORM HAS DEVELOPED METHODS FOR METALLIZING TRANSISTOR WAFERS AND ETCHING TO LEAVE AN INTERDIGITATED Emitter PATTERN THAT ALIGNS WITH A SIMILAR PATTERN ON THE BALLAST WAFER. WORKING ON SAMPLES.	453.0	376.0	45.0	MAR 82	SEP 81
E 80 3605	TRANSCELENT (HIGH POWER) TRANSISTOR RCA REQUESTED TERMINATION OF THE 79 CONTRACT FOR BUSINESS REASONS. HAD GOOD RESULTS ON CONTRACT WORK. TERMINATION IS RECOMMENDED BECAUSE THE TECHNOLOGY IS NOW AVAILABLE. FOR DETAILS SEE E803635.	31.0		8.0	MAR 82	SEP 81
E 78 3606	250 AMP TRANSCALENT (HIGH POWER) RECTIFIER RCA PRODUCTION ENGINEERED ITS METALLIZATION PROCEDURE FOR APPLYING A TAPERED THICKNESS ON THE WAFER. THIS IS TO GET A UNIFORM CURRENT THRU THE LARGE RECTIFIER AREA. SAMPLES WERE LOANED TO DOO CONTRACTORS FOR USE IN MILITARY ITEMS.	360.0	305.0	55.0	JUN 80	JUL 80
E 79 3606	250 AMP TRANSCALENT (HIGH POWER) RECTIFIERS RCA REQUESTED TERMINATION OF THE CONTRACT FOR BUSINESS REASONS. TECHNICAL PROGRESS HAS BEEN GOOD. SAMPLES WERE LOANED OUT FOR EVALUATION. TERMINATION IS RECOMMENDED BECAUSE THE TECHNOLOGY IS HERE	85.0	55.0	29.0	JUN 81	JUL 80

SUMMARY PROJECT STATUS REPORT  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED ORIGINAL LABOR AND MATERIAL (\$000)	PROJECTED COMPLETE DATE	PRESENT COMPLE- TION DATE
E 78 3613	VEHICLE-MOUNTED ROAD MINE DETECTOR SYSTEM ANTENNAS SEVERAL DESIGN RECOMMENDATIONS HAVE BEEN MADE AND APPROVED. PHASE I OF THE EFFORT HAS BEEN COMPLETED. THE FINAL REPORT HAS BEEN SUBMITTED AND ACCEPTED.		163.0	131.0	30.0	JUN 80
E 79 3613	VEHICLE-MOUNTED ROAD MINE DETECTOR SYSTEM ANTENNAS PRODUCTION OF ANTENNAS HAS BEEN INITIATED. PHASE II OF THE EFFORT IS COMPLETE AND A REPORT FROM THE CONTRACTOR HAS BEEN RECEIVED. THE FINAL REPORT WILL BE PUBLISHED IN AUGUST 1980.		163.0	99.0	10.0	JUN 80
E 79 3708	COATED FABRIC COLLAPSIBLE FUEL TANK-CIRCULAR SEAM WEAVING CONTRACT AWARDED TO FRL FOR 10K GAL COLLAPSIBLE TANK OF SEAMLESS FABRIC. YARNS SELECTED FOR TRIAL WEAVING RUNS. THE YARNS WERE COATED WITH VARYING AMOUNTS OF TIE-COAT COMPOUND. A 21 PCT PICKUP BY WT WAS OPTIMUM YARN PRETREATMENT. TRIAL SCHEDULED JULY		97.0	87.0	10.0	AUG 79
E 80 3708	COATED FABRIC COLLAPSIBLE FUEL TANK PROGRAM - CIRCULAR SEAM THE FY80 FUNDS WILL BE PROVIDED FOR AN EXTENSION OF THE FY79 CONTRACT. THEY WILL BE USED TO RESOLVE EXPECTED DIFFICULTIES AND/OR TO EXTEND THE SCOPE OF THE CONTRACT TO COVER LARGER SIZE FUEL TANKS.		92.9	7.2	SEP 81	JUN 82
E 79 3709	CONTINUOUS LENGTH FUEL HOSE ADVANCING MANDREL, LOOMED JACKET HOSE, AND BRAIDED JACKET HOSE PROCESSES ARE BEING EVALUATED. PROCESSING PARAMETERS ARE BEING ESTABLISHED FOR EACH PROCESS. BENCH TESTING HAS BEEN INITIATED.		245.0	164.5	15.4	SEP 81
E 80 3709	CONTINUOUS LENGTH FUEL HOSE WORK IS PROGRESSING ON PLACING THE CONTRACT.		175.0		9.6	SEP 83
E 80 3717	HIGH TEMPERATURE TURBINE NOZZLE FOR 10 KW POWER UNIT CONTRACT IS BEING NEGOTIATED.		400.0		25.0	OCT 82
E 79 3743	COMPOSITE SPUN MATERIAL LAUNCHING BEAM FOR BRIDGES INITIATION OF WORK IS AWAITING COMPLETION OF R&D PERTAINING TO FRiction SHOE MATERIAL SELECTION		833.0	833.0	SEP 80	DEC 82
E 80 3747	LIGHTER, LACY-30, SKIRT AND FINGER COMPONENTS THE CONTRACT PACKAGE HAS BEEN PREPARED, APPROVED, AND IS AWAITING SOLICITATION.		191.0		NOV 80	JUN 81
E 77 3749	HYDRAULIC ROTOR ACTUATORS ENGINEERING DRAWINGS HAVE BEEN UPDATED. DRAFT SPECIFICATIONS, ASSEMBLY PROCEDURES AND MANUFACTURING ROUTING SHEETS WERE SUBMITTED.		750.0	742.0	MAY 79	DEC 81

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
E 80 3749	HYDRAULIC ROTARY ACTUATORS FUNDS HAVE RECENTLY BEEN OBTAINED TO CONTINUE A REDESIGN OF A CRITICAL COMPONENT OF THE ACTUATORS AND DEVELOP PRODUCTION BENCH TESTS. A REQUEST FOR PROCUREMENT IS IN PROCESS.	145.0	145.0	145.0	DEC 81	DEC 81

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COMMUNICATIONS R&D COMMAND  
(CORADCOM)

## COMMUNICATIONS R &amp; D COMMAND

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING	
			ALLOCATED ( \$ )	EXPENDED ( \$ )	REMAINING ( \$ )	EXPENDED ( \$ )
76	1	437,800	392,800	358,800 ( 91%)	45,000	45,000 (100%)
77	0	0	0	0 ( 0%)	0	0 ( 0%)
77	1	448,800	398,800	398,800 (100%)	50,000	50,000 (100%)
78	2	816,500	745,900	550,000 ( 73%)	70,600	70,600 (100%)
79	2	1,010,000	545,000	79,600 ( 14%)	465,000	58,200 ( 12%)
80	2	425,000	0	0 ( 0%)	425,000	19,900 ( 4%)
81	0	0	0	0 ( 0%)	0	0 ( 0%)
82	0	0	0	0 ( 0%)	0	0 ( 0%)
<b>TOTAL</b>	<b>8</b>	<b>3,138,100</b>	<b>2,082,500</b>	<b>1,387,200 ( 66%)</b>	<b>1,055,600</b>	<b>243,700 ( 23%)</b>

AUTHORIZED FUNDING

CONTRACT ALLOCATED 66%

INHOUSE REMAINING 33%

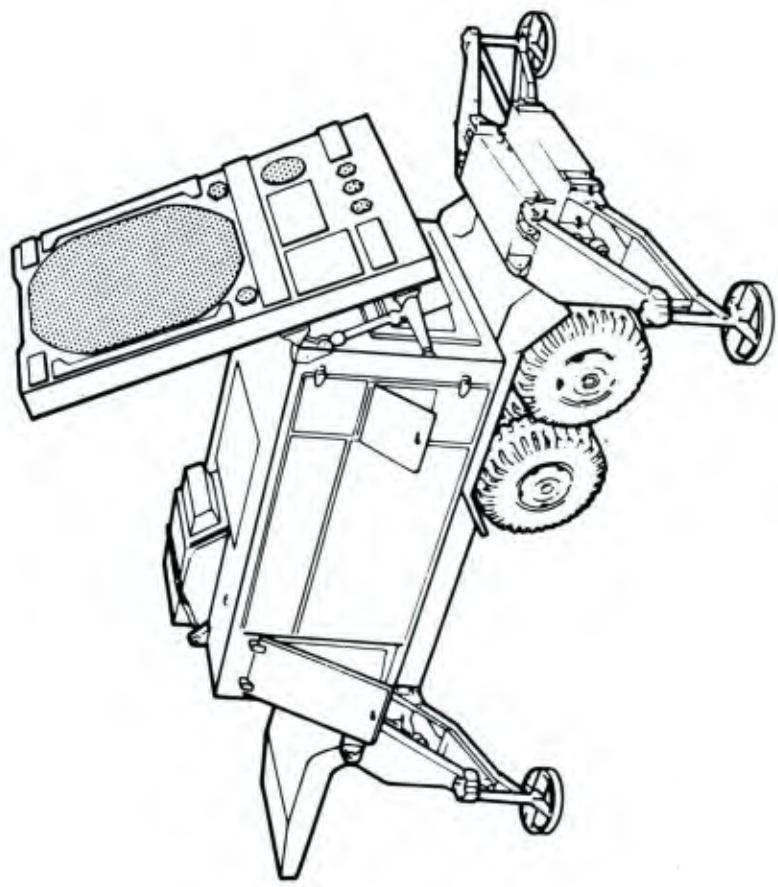
SUMMARY PROGRESS STATUS REPORT  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ No.	TITLE + STATUS	MANUFACTURING METHODS AND TECHNOLOGY PROGRAM			
		AUTHO-RIZED VALUES (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE
F 80 3036	CAD/CAM OF SPECIAL ELECTRONIC CIRCUITS FUNDS WERE WITHDRAWN FROM THIS PROJECT AND APPLIED TO OTHER PROJECTS INCLUDING ECAM.	20.0	20.0	4.9	AUG 81 AUG 81
F 80 3054	PRODUCTION METHODS FOR MULTI-LAYER FOLDED CIRCUITS CONTRACT BEING NEGOTIATED. CONTRACTOR WILL ESTABLISH MATERIAL, PROCESS SPECS, AND STANDARDS FOR MULTILAYER, MULTIFOLDING RIGID-FLEX CIRCUIT BOARDS. FABRICATION AND TESTING WILL BE AUTOMATED. ETCHING AND PLATING WILL BE OPTIMIZED.	405.0	405.0	15.0	SEP 82 SEP 82
2 78 9773	COMPUTER AIDED F/PREP OF AUTO ANALOG CIRCUIT PROD TEST PROG CAPABILITY WAS DEMONSTRATED IN JUNE 1980. MODEM CONNECTION BETWEEN TOBYHANNA AD AND CONTRACTOR (HARRIS) PERMITTED DEMONSTRATION OF AUTOMATIC TEST PROGRAM GENERATOR ON EQUATE. TEST CIRCUITS WERE ANALYZED FOR MIXER, FILTER, AMP, POWER SUPPLY, OSCILLATOR	500.0	453.4	46.6	NOV 79 AUG 80
2 76 9778	LONG LIFE LIGHT Emitter FOR FIBER OPTICS SEE INDIVIDUAL SUBTASKS.	437.8	392.8	45.0	AUG 78 DEC 80
2 76 9778 A	LONG LIFE LIGHT Emitter FOR FIBER OPTICS LASER DIODE LAB'S PILOT RUN OF SINGLE STRIPED INJECTION LASER DIODES FOR FIBER OPTIC COMMUNICATIONS SUFFERED A HIGH INFANT MORTALITY RATE DURING BURN-IN. REPLACEMENTS ARE IN PROCESS. PHOTOLITHOGRAPHY AND CHEMICAL ETCHING ARE UTILIZED.	437.8	193.8	45.0	DEC 80
2 76 9778 B	LONG LIFE LIGHT Emitter FOR FIBER OPTICS LASER DIODE LABS HAD PROBLEMS MEETING LINEARITY AND POWER OUTPUT REQUIREMENTS OF SCS511 FOR THE LED'S. THE SPECS ARE STRINGENT AND WILL BE RELAXED. SELECTIVE DIFFUSION USING A SILICON NITRIDE MASK IS DONE AND HEADER IS SOLDERED ON.	437.8	198.9	45.0	DEC 80
2 77 9835	INT CONTL CRCIT FOR THIN FILM TRANSISTOR DISPLAY ***** DELINQUENT STATUS REPORT *****	448.8	398.8	50.0	MAR 79 AUG 81
F 79 9835	INTEGRATED THIN FILM TRANSISTOR DISPLAY AEROJET ELECTRO-SYSTEMS MODIFIED THE THIN FILM DISPLAY CIRCUIT TO USE ICS FOR THE SCANNING CIRCUITS. CONTRAST-ENHANCING BLACK LAYER GIVES LEGIBILITY IN SUNLIGHT. 23 MASKS FOR REVISED CIRCUITRY ARE BEING MADE AND PROCESSES ARE BEING REFINED.	600.0	545.0	13.5	AUG 81 AUG 81
2 78 9898	RUGGEDIZED TACTICAL FIBER OPTIC CABLES ITT ELECTRO-OPTICS FOUND NEW POLYURETHANE JACKET CRACKED AT LOW TEMP. GOODRICH WAS ASKED TO GO BACK TO OLD FORMULA. TEST STATIONS ARE COMPLETE. PRODUCTION RATES ARE ABOVE REQUIREMENTS IN ALL BUT THE REWIND STATION. REWINDER IS BEING REPAIRED.	316.5	292.5	24.0	NOV 79 JUL 81

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
SUMMARY PROJECT STATUS REPORT  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED ORIGINAL LABOR AND MATERIAL (\$000)	PROJECTED COMPLETE DATE	PRESENT
F 79 9938	THREE COLOR LIGHT EMITTING DIODE DISPLAY UNIT THIS PROJECT HAS BEEN FUNDED FOR 21 MONTHS NOW AND IT IS STILL IN THE CONTRACT AWARD PHASE.	410.0	444.7	SEP 81	MAR 82	

F 79 9938      THREE COLOR LIGHT EMITTING DIODE DISPLAY UNIT  
THIS PROJECT HAS BEEN FUNDED FOR 21 MONTHS NOW AND IT IS STILL IN  
THE CONTRACT AWARD PHASE.



**ELECTRONICS R&D COMMAND  
(ERADCOM)**

## ELECTRONICS R &amp; D COMMAND

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS (\$)	C O N T R A C T F U N D I N G		* INHOUSE FUNDING REMAINING (\$)	* EXPENDED (\$)
			ALLOCATED (\$)	EXPENDED (\$)		
76	4	1,403,500	1,157,100	1,208,400 (104%)	246,400	126,200 ( 51%)
77	0	0	0	0 ( 0%)	0	0 ( 0%)
77	12	8,111,300	6,744,200	6,179,900 ( 91%)	1,367,100	857,000 ( 62%)
78	5	3,549,400	2,687,800	2,154,900 ( 80%)	861,600	226,200 ( 26%)
79	10	5,264,900	2,999,800	1,170,400 ( 39%)	2,265,100	225,700 ( 9%)
80	13	7,745,900	965,500	9,700 ( 1%)	6,780,400	102,300 ( 1%)
81	0	0	0	0 ( 0%)	0	0 ( 0%)
82	0	0	0	0 ( 0%)	0	0 ( 0%)
<b>TOTAL</b>	<b>44</b>	<b>26,075,000</b>	<b>14,554,400</b>	<b>10,723,300 ( 73%)</b>	<b>11,520,600</b>	<b>1,537,400 ( 13%)</b>

AUTHORIZED FUNDING      CONTRACT ALLOCATED 56%      INHOUSE REMAINING 44%

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES- ENT COM- PLET- E DATE
H 80 3010	MILLIMETER-WAVE SOURCES FOR 60, 94, AND 140 GHZ PROJECT IS TO BE JOINTLY FUNDED WITH AIR FORCE. A CONTRACTOR WILL USE COMPUTER CONTROL OF EPITAXIAL GROWTH SYSTEM AND DEVICE PROCESSING TO MAKE SILICON IMPATT DIODE SOURCES FOR RADAR TARGET DETECTION AND HOMING. AF PORTION NOT YET FULLY FUNDED.	8222.0	8222.0	1.5	JUL 82	JUL 82
H 80 3012	INFRARED SOURCE FOR ALQ-144 ILC TECHNOLOGY WILL ESTABLISH HIGH YIELD PROCESSES FOR MACHINING GRAPHITE HEATER AND SAPPHIRE ENVELOPE, CHEMICAL VAPOR DEPOSITION OF BORON NITRIDE, ASSEMBLING, BURN-IN AND TEST. APPLICATION IS AN INFRARED SOURCE FOR ALQ-144 COUNTERMEASURES SET.	350.0	264.3	9.8	JAN 81	DEC 81
H 80 3023	TUBULAR-PLASMA PANEL THE PROPOSALS WERE RECEIVED 21 FEB 80. FINAL EVALUATION WAS SENT TO PROCUREMENT ON 15 MAY 80. AUDITS INITIATED ON PHOTONICS TECHNOLOGY AND NORDEN SYSTEMS SHOULD BE COMPLETED BY JUNE 30.	800.0	800.0	8.0	APR 82	JUN 82
H 80 3026	HIGH PRESSURE OXIDE IC PROCESS **** DELINQUENT STATUS REPORT ****	912.5	912.5	5.0	MAY 82	
H 80 3501	THIRD GENERATION PHOTOCATHODE ON FIBER OPTIC FACEPLATE CONTRACTOR WILL EPITAXIALLY GROW A GALLIUM ARSENIDE PHOTOCATHODE ON A FIBER OPTIC MICROCHANNEL PLATE. WILL ALSO MECHANIZE THE CUTTING AND BONDING OF THE FIBER OPTIC WINDOW. WILL FIND OPTIMUM ANTIREFLECTIVE COATING MIL. AND ELECTRIC CONTACT THICKNESS.	572.4	572.4	10.0	MAR 82	MAR 82
H 79 3504	ADV METH F/FABR CHALCOGENIDE GL IR LENS BK'S AMORPHOUS MATERIALS INC USED ITS NEW COMPOUNDING FURNACE TO CAST 10 INCH DIAMETER GE-AS-SE GLASS BLANKS. THEY WERE DIAMOND SAWED INTO PLATES FOR INFRARED WINDOWS. PROCESSES ARE NOW USED IN PRODUCTION OF IR OPTICAL COMPONENTS.	270.0	230.0	15.0	MAY 81	JUN 81
H 80 3510	TRANSDUCER PROCESS TECHNOLOGY FOR MW DELAY LINES WESTINGHOUSE WILL ESTABLISH MANUFACTURING TECHNIQUES FOR FABRICATING HIGH QUALITY ZINC OXIDE TRANSDUCERS AT A YIELD OF OVER 50 PERCENT. THE CONTRACT WAS AWARDED IN JUNE 1980.	509.0	272.1	50.0	AUG 82	AUG 82
H 78 3511	FAB OF SUBMICRON PHOTOMASKS FOR INTEGRATED CIRCUIT DEVICES HEWLETT PACKARD BUILT AN ON-LINE ERROR CORRECTION SYSTEM THAT IS OPERATIONAL AT HDL. ALSO, PATTERN REVERSAL IS OPERATIONAL. A DIRECT WAFER STEPPER IS BEING PROCURED. WORK WILL RESULT IN HDL CAPABILITY FOR GENERATING SUB-MICRON ARTWORK FOR LSI.	608.0	58.1	13.4	SEP 81	JUN 81
H 79 3516	CRYOGENIC COOLER HYBRID MOTOR CIRCUIT AEROFLUX RECONFIGURED THE HYBRID MOTOR CONTROL CIRCUIT TO MAKE IT FIT INTO THE HOUSING EASIER. THE HYBRID CIRCUIT WILL BE IMMERSED IN THE LIQUID HELIUM. FIVE SAMPLES ARE BEING BUILT.	175.9	140.8	12.0	JUN 81	JUN 81

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
 SUMMARY PROJECTIONS STATUS REPORT  
 1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ No.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
H 79 5000	PRODUCTION HOT FORGING OF ALKALI HALIDE LENSES HONEYWELL OPTIMIZED THE FORGING OF POTASSIUM BROMIDE LENSES. THEY REDUCED INERT GAS PRESSURE IN THE DIE TO ONE ATMOSPHERE. CRYSTAL STRAIN WAS ALSO REDUCED FROM THE CONSTANT STRAIN PRESSING. NOW LENSES MUST BE COATED TO PREVENT DAMAGE BY MOISTURE.	591.0	541.0	30.0	SEP 81	SEP 81
H 79 5042	LARGE DIAMETER ND LITTON IS USING TWO NEW REACTORS TO GROW NEODIUM YAG BOULES OF 2 INCH DIAMETER. DEFECTS AND FRACTURES ARE OCCURRING AT A DECREASING RATE INDICATING THE PROCESS IS COMING UNDER CONTROL. BOULES WILL BE CUT AND POLISHED INTO RODS FOR THE GVS-5 LASER.	350.0	303.0	23.5	JUL 81	JUN 81
H 80 5054	MMT-8 KBIT MNOS BORAM WESTINGHOUSE WILL OPTIMIZE PRODUCTION TECHNIQUES FOR PACKAGING SEMICONDUCTOR MEMORY WAFERS. A 15% PROCESS YIELD IS SOUGHT. A PRODUCTION RATE OF 500 16-CHIP HYBRID MEMORY CIRCUITS PER MONTH IS DESIRED.	80.0	80.0	0	JUN 81	JUN 81
H 80 5095	MFG TECH ASSESSMENT OF ELECTRONICS ***** DELINQUENT STATUS REPORT *****	15.0	0	0		
H 80 5110	COMMON MODULE DETECTOR ARRAY A CONTRACTOR WILL APPLY SEMICONDUCTOR PROCESSING METHODS TO THE MFG OF MERCURY-CADMIUM-TELLURIDE DETECTOR ARRAYS. WILL LAP AND POLISH BY BATCH METHODS. WILL PHOTOMASK, PLASMA ETCH, AND ION MILL TO REPLACE WET ETCHING. WILL METALLIZE FOR LEAD-OUTS.	1,300.0	0	0	JUN 81	JUN 81
H 80 5147	HI RESISTIVITY POLYCRYSTALLIN SILICON HEMLOCK SEMICONDUCTOR CORP OR ANOTHER FIRM WILL IMPROVE THE PROCESS FOR MAKING CLEAN POLYSILICON FOR SUBSEQUENT REFINING INTO SINGLE CRYSTAL RODS. WILL PROVIDE A DOMESTIC SOURCE OF POLYCRYSTALLINE SILICON FOR ZONE REFINING INTO SINGLE CRYSTAL SILICON	340.0	0	0	SEP 82	SEP 82
H 80 9563	MINATURE HIGH VOLTAGE POWER SUPPLIES FOR NIGHT VISION GOGGLES A CONTRACT WAS AWARDED TO K&M ELECTRONICS. THIS PROJECT WILL PROVIDE VOLUME PRODUCTION, HIGH YIELD AND RELIABLE METHODS FOR PRODUCING MINATURE HIGH VOLTAGE POWER SUPPLIES FOR 3RD GENERATION IMAGE TUBES.	535.0	349.1	10.0	JUN 82	OCT 82
H 80 9588	THIRD GENERATION LOW COST IMAGE INTENSIFIER TUBES CONTRACT NOT YET AWARDED. A FIRM WILL DEVELOP OPTIMUM ASSEMBLY, INSPECTION AND SALVAGE METHODS FOR 3RD GEN GOGGLE TUBES. VACUUM PROCESSES WILL INCLUDE PREBAKE AND ELECTRON DESORPTION OF MICROCHANNEL PLATE AND PHOSPHOR SCREEN. GETTER FLASH AND SEAL.	900.0	0	0	APR 83	APR 83

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
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PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
2 76 9738	EPITAXIAL + METALLIZATION PROCESSES F/GAAS IMPATT DIODES MICROWAVE ASSOCIATES IS DEVELOPING AN AUTOMATIC SYSTEM WITH FEEDBACK CONTROLS FOR EPITAXIAL GROWTH OF GALLIUM ARSENIDE FILM ON GALLIUM ARSENIDE WAFERS. WILL CONTROL GAS FLOW AND DEPOSITION RATES FOR CORRECT DOPANT PROFILES. DEMO IS SET FOR SEP 1980.	248.8	247.0	1.0	JUN 77	NOV 80
H 78 9738	PULSED GALLIUM ARSENIDE IMPATT DIODES MICROWAVE ASSOCIATES EXPANDED ON THE AUTOMATED CONTROL OF EPITAXIAL GROWTH OF BOTH P AND N TYPE LAYERS IN THE SAME REACTOR. BOTH P AND N TYPE LAYERS ARE NEEDED FOR PULSED GATAS IMPATT DIODES FOR OSCILLATORS & AMPLIFIERS. PROJ HAS EXCELLENT RESULTS.	500.0	441.2	34.7	JUN 80	NOV 81
2 77 9751	MFG METHODS FOR FABRICATION OF YAG LASER RODS PILOT RUN IS COMPLETE. NEW BATCH GRINDING AND POLISHING PROCESSES YIELD YAG LASER RODS EXCEEDING SPIC SCS-507. NEW TOOLING AND PROCESSES ARE USED TO PRODUCE 150 YAG RODS PER MONTH FOR THE MORE STRINGENT AN/GVS-5. DEMO WAS ON 22 JULY 1980.	142.0	119.0	23.0	JAN 79	SEP 80
2 77 9754	CONTIN CYCLE PROC OF SHOCK RESISTANT QUARTZ CRYSTAL UNITS GENERAL ELECTRIC NEUTRON DEVICES DEPT IS DEBUGGING ITS HIGH VACUUM QUARTZ CRYSTAL FABRICATION FACILITY. TECHNICAL PROBLEMS AND OTHER PRODUCTION CAUSED PROVEOUT SLIPPAGE COSTING AN ADDITIONAL \$359K. SAMPLE & PILOT RUN QUANTITIES ARE TO BE CUT IN HALF.	1,489.4	1,426.4	63.0	DEC 79	JUN 81
2 76 9766	DEPOSITION OF A HIGHVOLTAGE INSULATING LAYER FOR THICK FILM ERIE TECH BUILT AND TESTED HYBRID THICK FILM MULTIPLIER MODULES ON THE NEW DESIGN. THE MODULE IS BEING RECONFIGURED TO AID PRODUCTIBILITY. NEW UNITS WILL BE BUILT AND TESTED BEFORE GOING TO THE CONFIRMATORY PHASE. PROJECT ENGR WILL WITNESS THE TESTS.	182.9	128.5	35.0	AUG 78	AUG 81
2 76 9771	LOW TEMP PROCESS OF BULK SEMICONDUCTOR SWITCHES + LIMITERS MICROWAVE ASSOCIATES ESTABLISHED METHODS FOR DIFFUSING SHALLOW JUNCTIONS IN INTRINSIC SILICON, FORMATION OF CONTACTS TO THE SHALLOW JUNCTIONS, ASSEMBLY & MOUNTING OF LIMITER DIE IN MICROWAVE STRUCTURES, & MATING OF LOW & HIGH POWER LIMITER STRUCTURES	380.0	247.5	32.5	AUG 78	SEP 80
2 76 9783	PRODUCTION OF HIGH RESISTIVITY SILICON MATERIAL ***** DELINQUENT STATUS REPORT *****	591.8	534.1	57.7	AUG 78	DEC 80
H 79 9783	PRODUCTION OF HIGH RESISTIVITY SILICON MATERIAL HUGHES AIRCRAFT CO DESIGNED A LARGE AUTOMATED ZONER BUT ITS ESTIMATED COST EXCEEDED FUNDING AUTHORIZED. NEW DESIGN TO REDUCE COST WILL BE REVIEWED AT 20 AUG MEETING. WORK IS JOINT WITH AIR FORCE. NEW DESIGN MAY BE USED IN A FACILITIES PROJECT.	593.0	533.0	34.2	DEC 81	DEC 81

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
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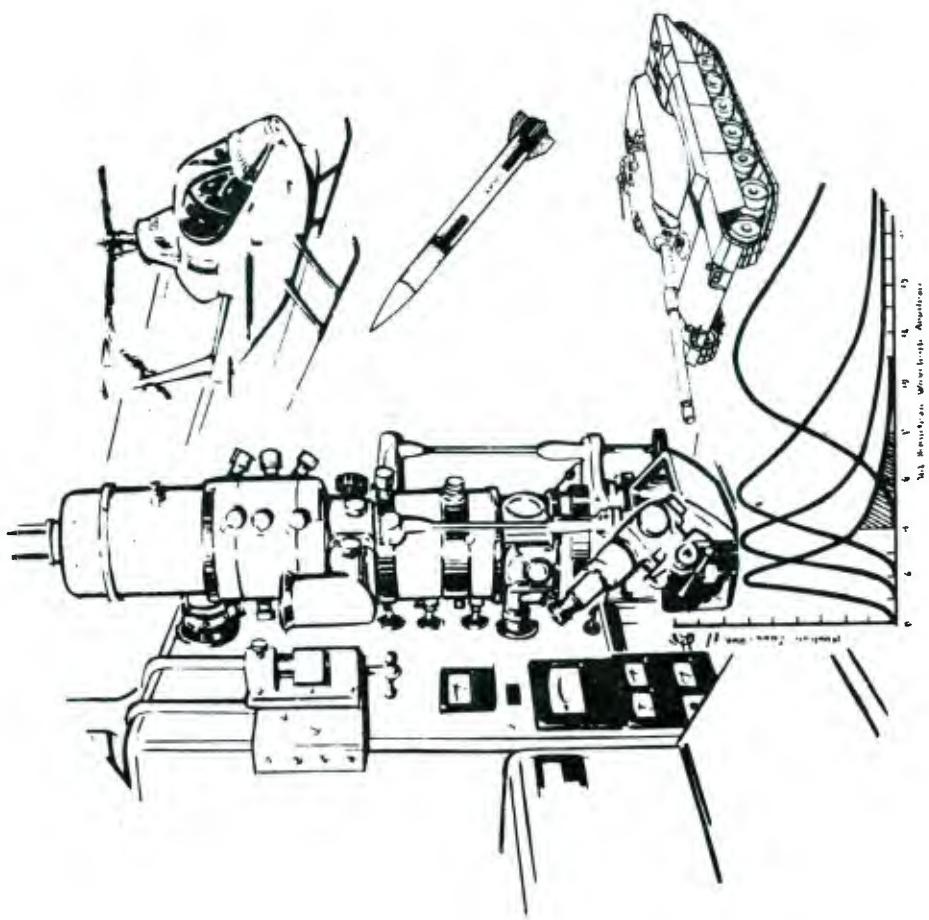
PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
2 77 9792	PDN OF FUNNELLED MCPS WITH HIGH SECONDARY EMITTING COATING GALILEO ELECTRO-OPTICS FOUND A NEW LACQUER THAT DOES NOT CRACK. BUT NOW THE MCPS HAVE AN EXCESS OF EMISSION POINT DEFECTS. THE FIRM IS VARYING THE PROCESS CONTROLS TO FIND THE CAUSE AND HAS A TENTATIVE SOLUTION. FUNNELLED MCPS ARE HARD TO LACQUER.		600•0	471•7	128•3	MAR 80 APR 81
H 78 9793	PRODUCTION OF INTAGLIATED FIBER OPTIC PHOSPHOR SCREEN ITT (EOPD) ESTABLISHED PROCESSES TO ETCH OUT THE CORES OF OPTIC FIBERS, METALIZE THE WALLS, THEN DEPOSIT PHOSPHOR AND A THIN LAYER OF ALUMINUM TO FILL THE ETCH PITS. TESTS ON PLATES ASSEMBLED INTO TUBES ARE NEARING COMPLETION.		200•0	177•1	30•0	DEC 79 SEP 80
2 77 9805	AUTO MICROCIRCUIT BRIDGE PDN MEASURE OF QUARTZ CRYSTALS HUGHES BUILT AN ADVANCED PRODUCTION QUARTZ CRYSTAL MEASURING SYSTEM FOR CHECKING 25 UNITS PER DAY. CONTRACT MOD FOR \$138K MORE WILL COMPLETE THIS WORK. TESTER USES AN AUTOMATIC MICROCIRCUIT BRIDGE AND IS TO BE CITED IN MIL-C-3098.		680•0	580•0	75•0	JAN 79 SEP 81
H 79 9805	QUARTZ CRYSTAL PARAMETER TESTING SOLE SOURCE AWARD SCHEDULED FOR SEP 80 AS FOLLOW-ON TO 277 2802. HUGHES WILL BUILD MULTICRYSTAL TEMP CHAMBERS FOR AUTOMATICALLY ACQUIRING FREQ/TEMP & AGING DATA. WILL RAISE TEST CAPACITY FROM 25 TO 200 CRYSTALS/DAY. TIME SHARING TO BE USED.		725•0			JUN 80 JUN 82
H 79 9807	PROCESSING HIGH STABILITY QUARTZ CRYSTAL UNIT GENERAL ELECTRIC NEUTRON DEVICES DEPT WILL EXTEND THE CAPABILITY OF ITS CRYSTAL CUTTING, POLISHING, PLATING AND PACKAGING FACILITY BUILT ON PROJ 2769754. COST EST WAS CUT BUT \$693K MORE FUNDING IS NEEDED.		760•0	702•0	10•0	MAR 81 AUG 83
2 77 9808	AUTO INPROCESS EVAL OF THICK FILM PRINT + HYBRID CKT ASSY A PRODUCTION CAPABILITY DEMONSTRATION FOR THE AUTO IN-PROCESS EVALUATION SYSTEM WAS HELD IN JUNE 1980. RESULTS INDICATED SUCCESSFUL DETECTION OF 96.4 PERCENT OF THE SUBSTRATE DEFECTS.		576•3	531•3	45•0	AUG 78 AUG 80
2 77 9809	MEAS TECHNIQ FOR CHMICALS IN MFG PROC FOR SOLID ST MICROWAVE MICROWAVE ASSOCIATES PROCESSED 75 WAFERS THRU 50 STEPS USING CHEMICALS OF KNOWN IMPURITY. DATA WAS SENT TO PRD CORP. FOR COMPUTER ANALYSIS OF 19 OF 27 RUNS. A TREMENDOUS MASS OF DATA IS BEING ANALYZED. \$145K MORE IS NEEDED TO COVER MA'S RESTART COSTS		632•1	625•1	7•0	NOV 78 DEC 81
2 77 9812	SPLIT CYCLE STIRLING COOLER MARTIN MARIETTA COMPLETED 10 SAMPLE COOLERS CONSISTING OF MOTOR-DRIVEN COMPRESSOR & EXPANSION HEAD. THE COMPRESSOR WAS MADE OF CRES-HARDENED & HONED. THE PISTON WAS MACHINED OF ALUMINUM. 10 UNITS PASSED MOST TESTS. HYBRID CIRCUIT REJECTS CAUSED DELAY.		795•0	439•0	65•0	JAN 80 SEP 80

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1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED VALUES (\$000)	CONTRACT VALUES (\$000)	EXPENDED MATERIAL (\$000)	ORIGINAL LABOR AND MATERIAL DATE	PROJECTED COMPLETE DATE
2 77 9813	RUGGEDIZED LOW COST QUADRANT DETECTOR FOR CLGP. TI ESTABLISHED PROCESSES FOR FABRICATION OF RUGGEDIZED SILICON QUADRANT DETECTORS FOR USE IN CLGP. PROCESSES INCLUDE EPOXY BONDING SILICON DETECTORS AND PACKAGING. THERMAL SHOCK FAILURE OF SOME SAMPLES WILL CAUSE A 6 TO 7 MONTH DELAY.		375.0	159.0	40.3	JAN 80 SEP 81
2 77 9827	PROCESSING XP ARMOR FOR RADAR HARDENING APPLICATIONS ENGINEERING SAMPLES HAVE BEEN PRODUCED AND TESTED SATISFACTORILY. THICKNESS WAS 3/8-IN AND 1-IN. CONTRACTOR TESTING FINISHED. GOVT NOW TESTING ELECTRICAL PROPERTIES. FURTHER BALLISTIC TESTING BY AMRMC PLANNED.		588.0	360.9	227.1	JUL 79 SEP 80
H 79 9838	MINIATURE CATHODE RAY TUBES THIS PROJECT HAS NOW BEEN IN THE CONTRACT AWARD STATE FOR 16 MONTHS.		500.0		40.0	AUG 81 FEB 82
H 79 9844	CMOS CIRCUITS USING SILICON ON SAPPHIRE -SOS-TECHNOLOGY A PROGRAM TO ADDRESS PROBLEMS IN SILICON-ON-SAPPHIRE PROCESSING WAS WRITTEN. WILL BE ON CONTRACT BY SEP 80. CONTRACTOR WILL LOOK AT CRYSTAL GROWTH, WAFER PREPARATION, EPITAXIAL FILM GROWTH, CIRCUIT FABRICATION, AND EVALUATION PROCEDURES.		700.0		27.5	NOV 81 SEP 82
2 77 9845	NUMERICALLY CONTROLLED OPTICAL FABRICATION CHUCKING PROCEDURES FOR BOTH GERMANIUM LENSES AND ALUMINUM MIRRORS HAVE BEEN FIRMED UP AND LENS ARE BEING TURNED TO ELIMINATE TOOLING AND METROLOGY PROBLEMS.		333.3	304.3	25.3	OCT 77 MAY 81
2 77 9857	AUTO SEPARATION, CARRIER MOUNTING + TESTING OF SEMI-CDT DICE HONEYWELL & ERADCOM RESCOOPED THE PROJECT TO RUN 1200 COUNTER CIRCUITS. EACH HYBRID CONTAINS 2 COUNTER CHIPS, 1 SHIFT REGISTER CHIP AND A CAPACITOR. TAPE AUTOMATED BONDING WAS USED ON ALL CHIPS. UNITS WILL BE COMPARED W/CHIP-AND-WIRE UNITS. DEMO IN AUG.		1,275.0	1,129.3	131.0	OCT 79 FEB 81
H 78 9860	PDN TECHGE-GALLIUM ARSENIDE MIWAV FIELD EFFECT TRANSISTORS HUGHES IS ESTABLISHING COMPLETELY AUTOMATIC, COMPUTER CONTROLLED MANUFACTURING TECH. TO REPEATEDLY PRODUCE ACTIVE DEVICE LAYERS IN SEMI-INSULATING GALLIUM ARSENIDE. ION IMPLANTATION AND PHOTOLITHOGRAPHY ARE BEING USED. 10 MONTH NO-COST EXTEND GRANTED		469.3	399.3	33.1	NOV 80 AUG 81
2 77 9873	ANTENNA PATTERN MEASUREMENTS USING NEARFIELD TECHNIQUES WORK ACCOMPLISHED INCLUDES POSITIONER SYSTEM, COMPUTER, SIGNAL SOURCE AND RECEIVER INTEGRATION. SOFTWARE FOR CONTROL AND MEASUREMENT OF THE PROBE IS COMPLETED. MOST SOFTWARE FOR ACQUIRING ANTENNA DATA HAS BEEN DONE.		625.2	598.2	27.0	OCT 79 DEC 80

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
 SUM MARY PROJECT STATUS REPORT  
 1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCHT-301

PROJ NO.	TITLE + STATUS		AUTHO-	CONTRACT	EXPENDED	ORIGINAL	PRESENT
			RIZED	VALUES	LABOR AND MATERIAL	PROJECTED	PROJECTED COMPLETE DATE
			(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
H 79 9877	LIGHT EMITTING DIODE ARRAY COMMON MODULE SPECTRONICS MODIFIED TWO AUTOMATIC REACTORS TO GROW GA-AS-P MATERIAL FOR LIGHT EMITTING DIODES. WAFER CHARACTERISTICS WERE CORRELATED WITH REACTOR CONDITIONS. MFG PROCEDURES WERE WRITTEN. A DIODE CAPPING MACHINE WAS INSTALLED. ARRAYS WERE MADE.		600.0	550.0	33.5	APR 81	JUN 81
H 78 9889	THIRD GENERATION 0.9 MICRON WAFER INTENSIFIER TUBE SEE TASKS A AND B BELOW.		1,772.1	1,612.1	115.0	JUN 81	SEP 81
H 78 9889 A	THIRD GENERATION 0.9 MICRON WAFER INTENSIFIER TUBE (ITT) ITT TESTED ITS NEW 12-TUBE PROCESSING CHAMBER. FIXTURING IS STILL BEING VACUUM BAKED BUT WILL SOON BE READY. 3RD GEN CATHODES ARE IN SHORT SUPPLY BECAUSE OF GROWTH FURNACE MALFUNCTION. PLANT EXPANSION & HIGHER PRIORITY WORK. SAMPLES ARE 8 MOS LATE.		712.1	632.1	65.0	JUN 81	JUN 81
H 78 9889 B	THIRD GENERATION 0.9 MICRON WAFER INTENSIFIER TUBE (VARIAN) VARIAN LACKS PROCESS DOCUMENTATION AND CLEAN ROOM TECHNIQUES NEEDED TO BUILD QUALITY IMAGE TUBES. MCPS & PHOTOCATHODES DID NOT MEET SPECS. MODIFICATION OF BATCH PROCESS INDICATES MULTIPLE PROCESSING IS POSSIBLE. EXPENDITURE RATE IS EXCESSIVELY HIGH.		1,060.0	980.0	50.0	JUN 81	SEP 81
H 80 9897	SURFACE ACOUSTIC WAVE RESONATOR + REFLECTIVE ARRAY DEVICES THIS PROJECT IS IN THE CONTRACT AWARD CYCLE. THE COSTS WERE INCREASED FROM 300K TO 610K. THE TECHNICAL AREA TO BE INVESTIGATED IS PRECISION ION OR PLASMA ETCHING OF PIEZO-ELECTRIC SUBSTRATES.		610.0			AUG 82	OCT 82



**US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND  
(DARCOM)**

**US ARMY MATERIALS AND MECHANICS RESEARCH CENTER  
(AMMRC)**

**US ARMY DEPOT SYSTEM COMMAND  
(DESCOM)**

## HQ-DARCOM &amp; ARMY MATERIALS AND MECHANICS RESEARCH CENTER &amp; DESCOM

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT FUNDING		INHOUSE FUNDING EXPENDED ( \$ )	REMAINING ( \$ )	* * * * *
			ALLOCATED ( \$ )	EXPENDED ( \$ )			
77	1	383,000	383,000	227,100 ( 59%)	0	0 ( 0%)	
77	1	305,000	208,000	73,000 ( 35%)	97,000	97,000 (100%)	
78	3	5,653,500	1,910,200	118,100 ( 6%)	3,743,300	3,371,700 ( 90%)	
79	3	5,215,000	2,546,800	207,900 ( 8%)	2,668,200	2,580,100 ( 96%)	
80	4	5,206,000	2,172,200	0 ( 0%)	3,033,800	2,417,800 ( 79%)	
81	0	0	0	0 ( 0%)	0	0 ( 0%)	
82	0	0	0	0 ( 0%)	0	0 ( 0%)	
<b>TOTAL</b>	<b>12</b>	<b>16,762,500</b>	<b>7,220,200</b>	<b>626,100 ( 8%)</b>	<b>9,542,300</b>	<b>8,466,600 ( 88%)</b>	

AUTHORIZED FUNDING CONTRACT ALLOCATED 43% INHOUSE REMAINING 56%

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1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT COMPLETE DATE
M 78 6350 2200 MATERIALS TESTING TECHNOLOGY (MTT) SEE SUBTASKS BELOW FOR PROJECT STATUS.		4,500.0	1,204.7	3,295.3	JUN 79	OCT 80
M 78 6350 1807 NOT EQPT FOR RESIDUAL STRESS MEASUREMENTS THE FINAL REPORT HAS BEEN DRAFTED AND IS BEING REVIEWED.		264.0		264.0		JUL 80
M 78 6350 2200 SIZING AND COUNTING CONTAMINANTS IN RECOIL HYDRAULIC THE CONTRACT IS ESSENTIALLY COMPLETED. THE SYSTEM OPERATING PARAMETER HAS BEEN ESTABLISHED. THE SOFTWARE PROGRAM THAT AUTOMATICALLY MEASURES THE SIZE AND CHEMISTRY OF PARTICLES HAS BEEN SUCCESSFULLY COMPLETED.		90.0			APR 80	AUG 80
M 78 6350 2201 HOT ROTARY FORGED TUBE LASER GAGE MEASUREMENT THE DESIGN MODIFICATIONS TO THE LASER BAR GAGE SYSTEM WERE COMPLETED. THE FAB OF THE MECHANICAL OPTICAL ELEMENTS HAS BEEN COMPLETED. ALSO, FAB OF ELECTRONIC INTERFACE UNIT FOR LASER BAR GAGE AND ROTARY FORGE NC UNIT WAS COMPLETED AND CHECKED-OUT.		115.0	96.5	9.4	JUN 80	SEP 80
M 78 6350 2202 DYNAMIC TWIST MEASUREMENT OF RIFLING MACHINES AN ACCEPTABLE ROTARY ENCODER WAS RECEIVED IN FEB 1980. PROBLEMS WERE ENCOUNTERED WITH THE CALCULATOR CIRCUIT. AN ADDITIONAL CIRCUIT WAS DESIGNED AND FAB. NOW BOTH THE ENCODER & CALCULATOR FUNCTION PROPERLY. THE SOFTWARE DEVELOPMENT IS 60% COMPLETED.		36.0			33.1	APR 80
M 78 6350 2203 BALLISTIC IMPACT TEST SHATTERING RESISTANCE OF ARMOR NIL-DUCTILITY BALLISTIC IMPACT TEST ARE CONTINUING ON THE EFFECT PROJECTILE VELOCITY AND TEST TEMP ON THE ABILITY OF A PLATE WITH AN E.B. WELD CRACK STARTER TO RESIST BREAK UP.		75.0			44.0	SEP 80
M 78 6350 2204 HOLOGRAPHIC INSPECTION OF ROTARY FORGED PREFORMS THE IMAGE GENERATION AND ARRAY PROCESSING WILL BE A MODIFIED COMMERCIAL ULTRASONIC SYSTEM. THIS UNIT IS IDEALLY SUITED FOR THIS APPLICATION. SOME OF THE POWER AND SENSE AMPLIFIERS WILL HAVE TO BE MODIFIED TO PENETRATE 22 INCHES OF STEEL.		80.0	64.0	16.0	NOV 80	MAR 81
M 78 6350 2205 HOLOGRAPHIC DEFECT DETECTION BY PRESSURE STRESSING THE PROTOTYPE HAS BEEN COMPLETED. THE SYSTEM IS BEING READIED FOR DELIVERY TO MILAN AAP. THE MILAN ACCEPTANCE TEST PLAN IS BEING PREPARED AND IS NEAR COMPLETION.		125.0				
M 78 6350 2206 OPTICAL DETERMINATION OF DIMENSIONAL GAPS ON TANK PROJECTILE ALL THE DATA OBTAINED FROM THE PROJECT HAS BEEN ANALYZED. THE FINAL REPORT HAS BEEN WRITTEN AND IS BEING EDITED FOR SUBMISSION.		38.0			83.0	MAY 80
M 78 6350 2207 ON-LINE MOISTUREPROOFNESS VERIFIER F/EXPL FUZE TRAIN COMPONE THE PROJECT HAS BEEN COMPLETED. THE FINAL REPORT HAS BEEN WRITTEN AND IS IN THE PROCESS OF BEING TYPED.		34.0			34.0	MAR 80
M 78 6350 2208 HOLOGRAPHIC DEFECT DETECTION BY PRESSURE STRESSING THE PROJECT HAS BEEN COMPLETED. THE FINAL REPORT HAS BEEN WRITTEN AND IS IN THE PROCESS OF BEING TYPED.		150.0	7.0	143.0		SEP 80

SUMMARY REPORT  
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT		EXPENDED (\$000)	ORIGINAL LABOR AND MATERIAL VALUES (\$000)	PROJECTED COMPLETE DATE	PRESENT COMPLETE DATE
			VALUES (\$000)	MATERIAL (\$000)				
M 78 6350 2213	LASER INTERFEROMETER CALIBRATION STATION		60•0	5•8	45•5	APR 80	NOV 80	
	THE IN-HOUSE TRAINING WAS COMPLETED. AS A RESULT, SOME OF THE OPTICS DESIGN WAS CHANGED. THE LVDT CALIBRATION STATION HAS BEEN COMPLETED. THE TABLE DESIGN WAS FORMALIZED.		75•0	75•0	JUL 80	JUL 80		
M 78 6350 2220	MECHANICAL TEST FOR COMPOSITES IN TUBULAR SHAPES		45•0	45•0	DEC 79	DEC 80		
	SURFACE DISPLACEMENTS AND STRAINS CAN READILY BE MEASURED ON FILAMENT WOUND TUBES INTERNALLY PRESSURIZED. HOWEVER, THOSE ARTIFICIALLY FLAWED SPECIMENS FLAWS COULD NOT BE DETECTED BY Holographic OR THE ELECTRO-MECH SENSORS.		69•5	50•0	17•0	NOV 80	NOV 80	
M 78 6350 2224	AUTOMATED ANTENNA PATTERN MEASUREMENT		85•0	84•3	AUG 80	SEP 80		
	THE FAB AND TESTING OF COMPUTER INTERFACES IS NEARING COMPLETION. THE INTERACTION OF THE SYSTEM'S COMPONENTS HAS BEEN INITIATED.		86•0	57•3	JUN 80	NOV 80		
M 78 6350 2225	3-D SHOCK/VIBRATION TEST FOR MISSILE ARTLY FUZE MATE		40•0	40•6	SEP 80	SEP 80		
	THE COST VS OBJECTIVES CONTRACT WERE COMPLETED AND THE CONTRACT WAS AWARDED 31 DEC 79. THE DESIGN REFINEMENT OF THE SYSTEM IS NOW PROCEEDING. THE AVAILABILITY OF HDL FACILITIES ARE BEING REVIEWED.		185•0	175•0	FEB 80	JUN 80		
M 78 6350 2226	AIR FLOW TEST EQUIPMENT							
	12 OF THE 13 CIRCUIT BOARDS HAVE BEEN FAB AND TESTED. THE REMAINING BOARD IS IN THE PROCESS OF BEING TESTED. THE MICROCOMPUTER PORTION OF THE CONTROLLER IS ESSENTIALLY COMPLETED. THE TASK OF INTERFACING THE COMPUTER TO VALVES AND TRANSDUCERS REMAIN.							
M 78 6350 2227	SET-BACK DRAG TESTER FOR S+A DEVICES							
	A NEW ALIGNMENT GAUGE WAS FABRICATED TO CORRECT THE GUN TUBE ALIGNMENT PROBLEMS. A TOTAL OF 45 TESTS WERE CONDUCTED WITH THE DISMOUNTED DRAG TUBE CONFIGURATION.							
M 78 6350 2229	ANALYSIS OF CHITIN IN CONTAMINATED JET AIRCRAFT FUELS							
	THE TECH TO HARVEST AND REPURPOSE SPORES BY SONIFICATION WAS FINALIZED. OBSERVATIONS INDICATED THE C. RESINAE SPORES WERE DEFORMED OR RUPTURED BY BEING BOMBARDDED ULTRASONICALLY FOR 24 MIN AT 100% POWER AT 80% DUTY CYCLE.							
M 78 6350 2233	TRACK BUSHING TEST MACHINE							
	THE TRACK BUSHING TESTING HAS BEEN COMPLETED. THE DATA ANALYSIS IS UNDERWAY. MIL-T-11891 WILL BE REVISED TO REFLECT THE RESULTS OF THIS PROJECT.							
M 78 6350 2234	INSPECTION OF FLUX-CORED ARC WELDING							
	THREE HIGH-SPEED TEST SAMPLES WERE RECEIVED AND EXAMINED WITH EDDY CURRENTS AT VARIOUS WIRE SPEEDS RANGING FROM 150FT/MIN TO 700 FT/MIN. THESE TEST SAMPLES WERE NOT SATISFACTORY FOR TESTING THE EDDY CURRENT SYSTEM. ADDITIONAL SAMPLES WILL BE DEVELOPED							

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1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ No.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRES-ENT PROJECTED COMPLETE DATE
M 78 6350 2241	DIELECTRIC TECH FOR NDE NON-CONDUCTING CERAMIC MATTL. THE CONTRACT PAPER WORK WAS FORWARDED TO PROCUREMENT. THE CONTRACT IS SCHEDULED FOR AWARD 1 JULY 1980. SAMPLE CERAMIC TEST PLATES CONTAINING INTENTIONAL DEFECTS ARE BEING PREPARED AND CHARACTERIZED AT AMMRC.	85.0	101.0	20.0	JUL 81	DEC 80
M 78 6350 2245	NONDESTRUCTIVE EVALUATION OF CERAMIC MATERIALS A STUDY OF NDE TECH MOST WIDELY USED FOR CERAMICS HAS BEEN COMPLETED. PROCUREMENT SPECIFICATIONS FOR HIGH FREQUENCY ULTRASONIC AND RESONANCE FREQUENCY TEST EQUIP HAVE BEEN COMPLETED.	150.0	101.0	25.0	DEC 80	MAR 81
M 78 6350 2247	ULTRASONIC SPECTROSCOPY INSPECT ADHESIVE BNDN STRUCT PHASE I OF THE PROGRAM IS NEARLY COMPLETE AND A TECHNICAL REVIEW IS SCHEDULED FOR THE FIRST WK IN JUNE 1980. SEVENTY LAP SHEAR SPECIMENS HAVE BEEN MANUF AND ULTRASONICALLY TESTED. THE DESTRUCTIVE TESTING IS IN PROGRESS. THE CORRELATION IS NOT KNOWN.	100.0	45.0	16.0	SEP 81	SEP 81
M 78 6350 2248	FAST ULTRASONIC INSPECTION OF ARTILLERY SHELLS THE ELECTRONIC COMPONENTS FOR PACKAGING THE LINEAR ARRAY SYSTEM HAVE BEEN ORDERED AND DELIVERY IS EXPECTED WITHIN THE NEXT THREE MONTHS.	47.0		37.0	OCT 80	
M 78 6350 2250	CHEMICAL CHARACTERIZATION OF GRAPHITE FIBERS THIS TASK HAS BEEN COMPLETED. A TECHNICAL REPORT WILL BE FINALIZED WITHIN A FEW MONTHS.	30.0		30.0	APR 80	APR 80
M 78 6350 2254	ELECTROMAGNETIC TECH FOR DETERMINATION OF STRESS THIS PROJECT IS BEING CONTINUED UNDER PROJECT NO M 80 6350-2631 TITLED "CRITICAL ELECTROMAGNETIC INSPECTION PROBLEMS WITHIN THE ARMY." SEE M 80 6350-2631 FOR STATUS.	65.0		65.0	FEB 80	DEC 79
M 78 6350 2402	INSP PROC & TEST INSTRU F/MASS PROD SCATTERABLE MINES MICRO STAS TO U OF MICH FOR ANALYSIS OF EMBEDDED COMPUTING SYSTEMS, DECENTRALIZATION OF CONTROL, DATA BASE AND INTERFACES WITH NON-PROCESSING COMPONENTS. PROCURED "8000 MICROPROCESSOR DEVELOPMENT LABORATORY."	158.0	40.0	35.9	JAN 82	MAR 82
M 78 6350 2407	LQUD CHROMATOGRAPHY TECH F/MONITORING COMP OF EPOXY RESIN THE UV-VISIBLE SCANNING WAVELENGTH DETECTOR AND PHOTOCONDUCTIVITY DETECTOR WERE RECEIVED. A SPECIAL TEST PROCEDURE WAS DEVELOPED FOR ANALYZING THE CURING AGENT DICYANDIAMIDE. A PAPER DESCRIBING THIS PROCEDURE HAS BEEN SUBMITTED FOR PUBLICATION.	55.0		10.0		MAR 81
M 78 6350 2411	EVAL + APPL PYROELECTRIC VIVICON TO SHELTER PANELS PERFORMANCE SPECIFICATIONS HAVE BEEN COMPARED WITH THE LIQUID NITROGEN COOLED BARNES-BOFORS MECHANICAL IMAGING SYSTEM. EVALUATION OF THESE SYSTEMS ON GLASS-EPOXY BOX BEAM SUR-STRUCTURAL ELEMENTS OF COMPOSITE ROTOR BLADES IS CONTINUING.	115.0		55.0	JUL 80	JUL 80

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M 78 6350 2423	INSP. OF KNURL FOR 155MM M549 RAP A PRELIMINARY DESIGN WAS SUBMITTED BY THE CONTRACTOR FOR REVIEW. THE OVERALL DESIGN APPEARS TO BE ADEQUATE. THE DESIGN HAS BEEN PROVEN BY A BENCH MODEL SET-UP.	182.0	114.0	65.0	OCT 80	OCT 80
M 78 6350 2432	INSPECTION LEAK TEST APPARATUS A CONTRACT WAS AWARDED TO DETERMINE THE OPTIMUM DETECTOR SYSTEM. ONCE THE OPTIMUM DETECTOR SYSTEM IS DETERMINED, IT WILL BE MODIFIED AS REQUIRED AND EVALUATED AS A LEAK TRACE MONITOR FOR GAS FILTERS.	30.0	21.0	8.9	SEP 80	
M 78 6350 2434	RAPID NOT FOR DOPANT DENSITY AND DISTRIBUTION THE DOPANT CONCENTRATION MEASUREMENT SET-UP HAS BEEN CONTINUOUSLY OPERATED DURING THIS REPORTING PERIOD. THIS EQUIPMENT IS SUPPORTING THE AN/GVS-5 PROGRAM. SEVERAL INDUSTRY AND GOVERNMENT DEMONSTRATIONS HAVE BEEN CONDUCTED.	19.0	5.0	14.0	MAR 80	JUL 80
M 78 6350 2443	ULTRASONIC CLEANLINESS RATING OF STEEL THE ASSEMBLY AND TESTING OF A COMPUTER CONTROLLED ULTRASONIC INSPECTION SYSTEM DESIGNED FOR STEEL CLEANLINESS APPLICATIONS HAS BEEN COMPLETED. SOFTWARE FOR DATA ACQUISITION, ANALYSIS AND GRAPHICAL DISPLAY HAS BEEN WRITTEN.	50.0	50.0	50.0	SEP 80	SEP 80
M 78 6350 2449	GENERAL PURPOSE RESIDUAL STRESS ANALYZER EVALUATION TESTS WERE MADE ON TEXTURED STEEL SPECIMENS. THESE TESTS INDICATED THAT EITHER A SERIOUS SYSTEMATIC DEFICIENCY EXISTED OR THE SPECIMENS REVEALED AN ANOMALOUS BEHAVIOR OF STRESS.	25.0			JUN 80	DEC 80
M 78 6350 2637	PULSE ECHO ACOUSTIC MEASURE F/ELECTRO MAGNETIC COMPONENTS PRELIMINARY DESIGN OF FERRITE POSITIONING FIXTURE HAS BEEN COMPLETED. THE INSTRUMENTATION AND MATERIALS FOR THIS TASK HAVE BEEN ORDERED.	40.0			AUG 80	OCT 80
M 79 6350	MATERIALS TESTING TECHNOLOGY (MTT) SEE SUBTASKS BELOW FOR PROJECT STATUS.	4,470.0	1,967.5	2,502.5	OCT 80	OCT 80
M 79 6350 2025	AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL THE CONTRACTOR'S FINAL REPORT HAS BEEN ACCEPTED. THE CONTRACTOR ALSO PROVIDED A VIDEO TAPE OF THE AIDEC'S MACHINE FUNDAMENTALS AND OPERATION AND A FULL SET OF MECH DRAWINGS. THE REMAINING TASK CONSISTS OF CLOSING OUT THE CONTRACT.	531.5	228.0		JAN 80	SEP 80
M 79 6350 2238	USE OF TORSIONAL BRAID ANALYSIS TO MONITOR PREPREG AGING TWO PROBLEMS WERE INVESTIGATED. (1) USE OF AN AIR SUPPORTED TABLE TO DAMPEN BUILDING VIBRATIONS AND THE EFFECT OF TEMP VARIATIONS ON AGED SAMPLES AT ROOM TEMP RATHER THAN 50C.	30.0	16.0	3.4	APR 81	

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M 79 6350 2401	CANNON TUBE AUTOMATIC MAGNETIC BORESCOPE INSPECTION A TWO MONTH EXTENSION WAS GRANTED TO ALLOW FOR THE DELAY IN RECEIVING THE SCANNING MOTOR. THERE ARE NO OTHER FORESEEN PROBLEM AT THIS TIME. ONE SYSTEM WILL BE DELIVERED AND CHECKED OUT AT APG PRIOR TO FAB THE SECOND UNIT.	307.0	273.0	29.0	JUL 80	OCT 80
M 79 6350 2404	AUTO MEASUREMENT OF J-INTEGRAL FRACTURE TOUGHNESS THIS EFFORT IS ESSENTIALLY COMPLETED. ONLY THE FINAL REPORT AND TESTING PROCEDURE REMAIN TO BE COMPLETED. THE RESULTS INDICATE THAT RELIABLE AND ACCURATE MEASUREMENTS OF J-INTEGRAL FRACTURE TOUGHNESS CAN BE OBTAINED USING THE J5 METHOD.	44.0	42.0	42.0	JUL 80	SEP 80
M 79 6350 2405	BURN TIME TEST FOR ZIRCONIUM POWDER IN THERMAL BATTERY A PROTOTYPE DEVICE IS BEING COMPLETED. THE SYSTEM IS CAPABLE OF MEASURING THE BURN RATE OF THE ZIRCONIUM POWDER TRAIN, 0-20", AS WELL AS AN INTERIM DISTANCE OF 10-20". REFINEMENTS WILL CONTINUE TO BE MADE ON THIS SYSTEM.	70.0	17.0	46.0	DEC 80	DEC 80
M 79 6350 2406	IMPROVED TEST METHODS FOR STRUCTURAL FOAM NEARLY ALL THE DATA HAS BEEN COLLECTED. ONLY ONE FIRM HAS NOT PROVIDED DATA. THIS DATA IS SCHEDULED TO BE AVAILABLE BY JUNE 1980. THE IN-HOUSE TESTING EFFORT HAS BEEN COMPLETED.	40.0	40.0	40.0	DEC 80	15.0
M 79 6350 2407	Liquid CHROMATOGRAPHY FOR EPOXY RESIN FORMULATION A TEST PROCEDURE WAS DESIGNED FOR FINGERPRINTING THE CHEMICAL COMPOSITIONS OF EPOXY RESINS AND PREPREGS. SAMPLING PROCEDURES WERE DEVELOPED AND CRITERIA WERE ESTABLISHED FOR THE REPRESENTATIVES SAMPLING OF PREPREGS.	54.0	11.0	43.0	MAR 80	MAR 80
M 79 6350 2408	CHEMICAL ANALYSIS OF SILICON NITRIDE A METHOD WAS ESTABLISHED FOR FABRICATING "GLASSY DISKS" FROM A MIXTURE OF SILICON NITRIDE POWDER DENSIFIED WITH EITHER YTTRIUM OR CERIUM, THORIUM NITRATE ADDED AS AN INTERNAL STANDARD AND THE FUSING AGENT LITHIUM TETRABORATE.	140.0	4.4	92.6	MAR 80	FEB 81
M 79 6350 2409	EMISSION SPECTROGRAPH ANAL MARAGING STEEL PLASMA EXCITE THE RESULTS OF THE COBALT, MOYBDENUM, AND NICKEL COMPARE FAVORABLE WITH THE WET CHEMICAL VALUES. THE % RELATIVE STD DEVIATIONS WERE •12 TO •62 FOR COLBOT, •05 TO 1.42 FOR MOY BDENUM AND •38 TO •67 FOR NICKEL WHICH ARE GOOD FOR HIGH CONCENTRATIONS.	215.0	13.5	176.5	MAR 80	JUL 80
M 79 6350 2410	ULTRASONIC TRANSDUCER EVALUATION INSTRUMENT THE EQUIPMENT CONTRACT WAS AWARDED IN DEC 1979. THE EQUIPMENT DELIVERY WAS SCHEDULED FOR MAR 1980. HOWEVER, VENDOR DELIVERY PROBLEMS HAVE DELAYED THE DELIVERY OF THE LASER AND CIRCUIT BOARDS BY 3 MO. THE TEST AND EVALUATION PHASE WILL BEGIN IN JUNE 1980.	70.0	52.0	18.0	MAY 81	MAY 81

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M 79 6350 2412	MODAL ANALYSIS OF STRUCTURES SINCE THE BIDS RECEIVED WERE SUBSTANTIALLY HIGHER COSTS THAN ANTICIPATED, THE ORIGINAL PROCUREMENT ACTION WAS CANCELLED. A NEW PROCUREMENT ACTION WAS INITIATED WHICH CHANGED THE MILESTONE SCHEDULE.	65.0		41.0	AUG 81	SEP 82
M 79 6350 2413	TESTING OF TIRES AND ELASTOMERIC PRODUCTS FOURTH TIRE TESTING SYMPOSIUM PROCEEDINGS WERE PUBLISHED. ALSO, A MONOGRAPH TITLED, "TIRE TESTING SYMPOSIA, A SUMMARY," HAS BEEN COMPLETED AND IS BEING REVIEWED. IT IS INTENDED THAT THE MONOGRAPH WILL BE PUBLISHED AND DISTRIBUTED.	52.0		32.2	SEP 80	SEP 80
M 79 6350 2414	ELECTROTHERMAL ANALOG RESPONSE INSP EED'S PHASE I TESTING WAS COMPLETED. PHASE II IS READY TO BEGIN. THE SCW WAS ALTERED TO INCLUDE ONLY ONE LOADED EEDS. A DELAY IN THE DELIVERY OF THE MICRO DETONATOR SHOULD NOT CHANGE THE PROJECT COMPLETION DATE DRAMATICALLY.	160.0		88.0	OCT 80	DEC 80
M 79 6350 2417	COPPERHEAD CRITICAL FLAW DETECT OF COMPLEX COMPONENTS THE SOW FOR PHASE I & II HAS BEEN COMPLETED. THE EXISTING MMC CONTRACT WILL BE AMENDED TO INCLUDE THE PHASE I & II SOW. SOME DELAY IN THE PROJECT WAS EXPERIENCED WHEN THE CONTRACTOR DECIDED NOT TO PARTICIPATE. THIS HAS SINCE BEEN RESOLVED.	285.0		225.0	16.0	OCT 81
M 79 6350 2418	HALF LIFE OF TRITIUM LUMINOUS LAMPS PREPARED SOW FOR FAB, TEST AND MEASUREMENT OF RADIOLUMINOUS LAMPS AND EQUIPMENT FOR IN-HOUSE TESTING CAPABILITY. CONTRACTS WERE AWARDED FOR THE LAMPS, SPECIAL TEST EQUIPMENT AND DATA MANAGEMENT SYSTEM.	185.0		6.3	SEP 81	OCT 81
M 79 6350 2420	CALIBRATION FOR OPTICAL SCRATCH/DIG STDS FOR FIRE CONT THE SCOPE OF WORK WAS COMPLETED AND SUBMITTED TO PROCUREMENT 4 APRIL 1980. ALSO, THE FIELD INSPECTION OF SYSTEMS IS IN-PROCESS.	200.0		54.0	DEC 80	MAR 82
M 79 6350 2422	INSPECT/MEAS METHOD FOR SPHERICAL SURFACED COMPONENTS THE MOIRE TECHNIQUE FEASIBILITY STUDY WAS COMPLETED. THE PROCUREMENT REQUEST FOR THE ENGINEERING INSPECTION APPARATUS CONTRACT WAS RELEASED 27 MARCH 1980.	260.0		42.2	MAR 81	SEP 81
M 79 6350 2424	AUTOMATIC GEAR TOOTH CONTOUR INSPECTION SYSTEM THE PROCUREMENT PACKAGE IS EXPECTED TO BE COMPLETED IN JUN 1980. THE PROCUREMENT WAS SYNOPSIS IN THE MAY 15 1980 ISSUE OF THE COMMERCE BUSINESS DAILY.	98.0			MAY 81	MAY 81
M 79 6350 2425	OPTICAL TESTING OF FAR INFRARED MATERIALS IR INTERFEROMETER SET-UP FOR HOMOGENITY MEASUREMENTS WAS COMPLETED. MEASUREMENTS ON SELECTED SAMPLES INDICATED THAT THEY HAVE TO BE GROUND AND POLISHED BEFORE ACCURATE MEASUREMENTS CAN BE OBTAINED.	85.0		9.9	66.3	SEP 80

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		(\$000)	(\$000)	(\$000)	(\$000)			
M 79 6350 2426	CRYOGENIC COOLER HELIUM LEAK RATE TEST SET THE CONTRACT IS SCHEDULED FOR AWARD IN MAY 1980.		120•0	90•0	10•7	DEC 80	MAY 81	
M 79 6350 2428	TWO CHANNEL TELEMETER FOR 3-INCH SPIN AIR GUN THE MAJOR SUBASSEMBLIES, TRANSMITTER, ANTENNA, LOAD PROGRAMMER ETC., WERE INTEGRATED INTO A COMPLETE WORKING SYSTEM AND SUCCESSFULLY TESTED THROUGH THE LAB RECEIVING EQUIP.		60•0		57•0	MAY 80	JUL 80	
M 79 6350 2430	ACCEPT TESTER FOR COMMON MODULE SCANNER PERFORMANCE THE DESIGN REVIEW WAS HELD ON 1 APRIL 1980. SOME PROBLEMS HAVE BEEN ENCOUNTERED IN DIGITIZING THE DATA. IN ORDER TO RAPIDLY PROCESS THE DATA, SOME OF THE NON RELEVANT DATA MUST BE ELIMINATED. THE ALGORITHM FOR THE MTF CALCULATION IS BEING TESTED.		100•0	80•0	16•6	SEP 80	MAR 81	
M 79 6350 2433	POWER SUPPLY TEST CONSOLE FOR 2ND GEN IMAGE INTENSIFIER EVALUATION OF THE CONTRACTOR'S PROPOSAL WAS COMPLETED. THE REQUESTED 35K WAS RECEIVED FROM AMRRC. THE CONTRACT IS SCHEDULED TO BE AWARDED BY 30 JUNE 1980.		198•0		14•0	FEB 80	JUL 81	
M 79 6350 2438	HIGH PERF LIQUID CHROMATOGRAPHIC TEST OF AZIRIDINES MOST OF THE NECESSARY CHEMICALS AND EQUIPMENT HAVE BEEN RECEIVED. THE ANALYTICAL METHODS MOST PROMISING HAVE BEEN SELECTED FOR EVALUATION.		79•0		17•3	DEC 80	DEC 80	
M 79 6350 2439	SPECS FOR COMPOSITE PROPELLANT BINDERS THE AUTOMATIC INJECTOR HAS BEEN RECEIVED AND THE LIQUID CHROMATOGRAPH HAS BEEN AUTOMATED WITH THE AID OF A LABORATORY COMPUTER. A BREAKTHROUGH IN THE WORK UP PROCEDURE HAS ELIMINATED THE PROBLEM OF REMOVING UNREACTED 3,5 DNBC AND ITS SIDE PRODUCTS.		55•0		44•0	JUN 80	NOV 80	
M 79 6350 2440	GAS-LIQUID CHROMATOGRAPHIC TESTING OF NC-BASED PROP ALL MILESTONES HAVE BEEN COMPLETED EXCEPT THE DEVELOPMENT OF TRACE INGREDIENT ANALYSIS PROCEDURE. THE EVALUATION OF COLUMN PACKING IS CONTINUING. PACKINGS IN-HOUSE ARE GENERALLY SUPERIOR TO THOSE PURCHASED.		85•0	28•0	52•0	SEP 80	SEP 80	
M 79 6350 2444	ULTRASONIC TESTING OF ROADWHEELS TEN ROADWHEELS WERE UTILIZED TO ESTABLISH PRELIMINARY INSPECTION PROCEDURES AND INSPECTION EQUIPMENT SET-UP. THE PRELIMINARY SIGNAL ANALYSIS TO IDENTIFY WAVEFORM VARIATIONS HAS BEEN COMPLETED.		55•0	41•5	5•0	SEP 80	DEC 80	
M 79 6350 2445	ULTRASONIC TIRE INSPECTION THE FOUR FIELD ACTIVITIES USING THE TEST TIRES WERE VISITED. THE TIRE HISTORY FILES WERE REVIEWED. THE TIRE FAILURES TO DATE HAVE NOT PROVIDED STATISTICALLY SIGNIFICANT DATA. THESE FAILURES HAVE BEEN ATTRIBUTED TO MECHANICAL FAILURES.		79•0	54•0	25•0	DEC 80	MAY 80	

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			RIZED	VALUES	LABOR AND MATERIAL	PROJECTED COMPLETE	COMPLETE DATE
			(\$000)	(\$000)			
M 79 6350 2446	BLACKLIGHT TV SYSTEM	THIS PROJECT WAS COMBINED WITH THE WHITE LIGHT TV SYSTEM. APG RETAINED 13,500 TO PREPARE THE SOW AND EVALUATION PLAN. THE REMAINING 30,000 WAS RETURNED TO AMMRC.		13.5	0.9	AUG 80	JUN 82
M 79 6350 2447	AEROSOL TEST APPARATUS FOR BIOLOGICAL DETECT + WARNING ADDITIONAL FUNDS WERE RECEIVED. THE CONTRACT WAS AWARDED. SEVERAL AEROSOL GENERATORS HAVE BEEN EVALUATED ALONG WITH DETECTOR UNITS AND MISC HARDWARE COMPONENTS. THE DESIGN STUDY IS BASICALLY COMPLETE. A PROGRESS REPORT IS BEING PREPARED.		405.0	349.0	14.2	NOV 80	MAR 81
M 79 6350 2448	IMPROVED GB SIMULANT	FOUR PROPOSALS WERE RECEIVED IN DEC 1979. THESE PROPOSALS WERE REVIEWED AND THE CONTRACTOR SELECTION WAS MADE IN MAR 1980. THE CONTRACT IS SCHEDULED TO BE AWARDED IN EARLY JUNE 1980.		96.0	81.0	14.8	DEC 80
M 79 6350 2451	GUN TUBE ROUNDNESS MEASUREMENT	THE CURRENT CONCEPT CONSISTS OF ONE HEAD WHICH WILL COMBINE 2 POINT AND 3 POINT MEASURING SYSTEMS. BY COMPARING THE READINGS ELECTRONICALLY THE ROUNDNESS OF THE TUBE CAN BE OBTAINED. THE FAB OF THE SYSTEM WILL COMMENCE NEXT PERIOD.		65.0	17.5	SEP 80	SEP 81
M 79 6350 2452	ILLUM OF CANNON TUBE BORE SURFACES FOR VISUAL INSPECT	A PROTOTYPE ILLUMINATING HEAD USING FIBER OPTIC LIGHTING FOR THE M3 BORESCOPE WAS DELIVERED. THE FEASIBILITY OF THE CONCEPT WAS DEMONSTRATED BY THE CONTRACTOR. WORK IS CONTINUING TO DETERMINE THE LIGHT LOSS AT THE JUNCTION OF THE BORESCOPE SECTIONS.		60.0	49.0	10.2	SEP 80
M 79 6350 2453	THICKNESS MEASUREMENT OF NON-MAGNETIC COATINGS	THE PROTOTYPE CHROME PLATING THICKNESS GAGE HEAD HAS BEEN SUCCESSFULLY TESTED ON THE 120MM SMOOTHBORE GUN TUBE. THIS DEMONSTRATED THE FEASIBILITY TO MEASURE CHROME PLATING THICKNESS WITH A FIXTURED PROBE.		80.0	18.0	14.1	DEC 80
M 79 6350 2454	IMPROVEMENT OF BORE EROSION GAGE	THE MONITORING OF THICKNESS CHANGES INSIDE THE BORE DURING EITHER THE ELECTROPOLISHING OR THE CHROMIUM ELECTRODEPOSITION PROCESS USING ULTRASONIC GAGING (FOCUSSED ACCOUSTIC BEAM) WAS DEMONSTRATED.		20.0	4.2	15.8	MAR 80
M 79 6350 2455	QUENCH CRACK DETECTION	THE FLAW SIZE CRITERIA WAS COMPLETED. EIGHT TEST SPECIMENS HAVE BEEN OBTAINED WITH NATURAL QUENCH CRACKS. THE SPECIMENS ARE BOTH BREECH AND MUZZLE END DISCS THAT HAVE BEEN HEAT TREATED AT WATERLIET.		125.0	90.0	35.0	OCT 81

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M 79 6350 2456	TEST SYSTEM FOR REAL TIME MECHANICAL WEAR ASSESSMENT T-53LI3B ENGINE TESTING BEGAN ON JULY 25, 1979 AND IS CONTINUING. OIL SAMPLES FROM THE XM-1 ENGINE WILL BE ANALYZED.		25.0		OCT 80	OCT 80
M 80 6350	MATERIALS TESTING TECHNOLOGY  SEE SUBTASKS BELOW FOR PROJECT STATUS.		4,404.0	1,986.2	2,417.8	APR 83
M 80 6350 2603	PROVIDE AUTO SPHERICITY INTERFEROMETER F/T TEST LENS SURFACES THE SCOPE OF WORK WAS COMPLETED AND SUBMITTED TO PROCUREMENT 11 APRIL 1980. ALSO, THE INSPECTION OF FIELD SYSTEMS IS IN-PROCESS. Y. RADIOMETRY, RADIOGRAPHIC QUALIFICATION. THE MTMS DOES NOT MAIN		181.0		APR 82	APR 82
M 80 6350 2604	NEW COMPATIBILITY TEST METHOD FOR EXPLOSIVE SYSTEMS TECHNICIAN TEST PROCEDURE TRAINING WAS COMPLETED. THE TEMPORARY TEST EQUIPMENT ASSEMBLY WAS COMPLETED. THE TEST PASS/FAIL CRITERIA STUDY HAS STARTED.		56.0		SEP 81	SEP 81
M 80 6350 2621	TERMOELECTRIC MATERIALS TEST THE CONTRACT AWARD IS SCHEDULED FOR JULY 1980.		95.0	95.0	JUL 81	JUL 81
M 80 6350 2626	DETERMINATION OF LOW LEVEL CONCENTRATIONS OF LEAD INPAINT NO WORK PROGRESS WAS REPORTED. ONLY THE MILESTONE SCHEDULE WAS SUBMITTED. THE PROJECT WORK WAS SCHEDULED TO START IN APR 1980.		56.0		SEP 81	SEP 81
M 80 6350 2627	INFRARED SPECTROSCOPY ANALYSIS OF NON-VOLATILE VEHICLES WORK HAS NOT STARTED. THE PROJECT WORK IS SCHEDULED TO START 1 APRIL 1980.		20.0		APR 81	APR 81
M 80 6350 2628	STANDARD CONTAMINANT FOR TEST FUELS THE SCOPE OF WORK WAS COMPLETED. THE BACKGROUND STUDIES HAVE ALSO BEEN COMPLETED.		30.4		0.6	AUG 81
M 80 6350 2630	CRITICAL ULTRASONIC INSPECTION PROBLEMS WITHIN THE ARMY THE VARIABLE FREQUENCY EDDY CURRENT INST WAS COMPLETED INCLUDING A NUMBER OF YOKES, SPLIT WINDING AND HALL ELEMENT PROBES DESIGNED AND FABRICATED FOR THE INSPECTION OF GEAR TEETH. THE INTERFACE EQUIP DESIGN IS 75% COMPLETE.		160.0		14.2	JAN 81
M 80 6350 2630	CRITICAL ULTRASONIC INSPECTION PROBLEMS WITHIN THE ARMY THIS EFFORT HAS MULTI-TASKS. THESE TASKS ARE- TRANSDUCER EVALUATION, SYS. ASSEMBLY AND TEST, SHELL BODY ACQUISITION AND INSTRUMENTATION MOD. TO DATE NO WORK HAS BEEN SCHEDULED. THIS EFFORT IS SCHEDULED TO START JUNE 1980.		195.0		JAN 81	JAN 81
M 80 6350 2632	DEVELOPMENT OF INFRARED AND OPTICAL TESTS THE PROJECT PLANNING HAS BEEN ACCOMPLISHED. THE ANCILLARY TEST EQUIP HAS BEEN REPAIRED AND CALIBRATED.		103.0		DEC 81	DEC 81

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M 80 6350 2633	FOURIER TRANSFORM INFRARED TECH F/QUAL CONTROL OF PREPREG SYSTEM THE CALIBRATION OF THE FOURIER SPECTROPHOTOMETER WAS COMPLETED. DIFFERENCE SPECTRA BETWEEN THE NEW AND EXISTING SCANS WERE ALMOST IDENTICAL. A NUMBER OF SAMPLES HAVE BEEN FAB AND ANALYZED. MECH TESTS ARE BEING PERFORMED ON THESE SAMPLES.	30.0	30.0	10.0	FEB 81	FEB 81
M 80 6350 2636	DEVELOPMENT OF ANALYTICAL CHEMICAL METHODS FOR SPECS THE STATUS REPORT ONLY CONTAINED THE MILESTONE SCHEDULE. THE PROJECT WORK IS SCHEDULED TO START IN APRIL 1980.	70.0	70.0	6.5	APR 81	APR 81
M 80 6350 2639	ROADWHEEL SEAL TEST MACHINE VARIOUS DESIGN CONCEPTS ARE PRESENTLY BEING CONSIDERED IN CONJUNCTION WITH ESTABLISHING MACHINE PERFORMANCE OBJECTIVES AND CAPABILITIES.	140.0	140.0	2.9	JUN 82	JUN 82
M 80 6350 2640	TRACK TEST MACHINE THE TRACK TESTING MACHINE TRACK BLOCK ALTERNATIVE DESIGNS ARE BEING PREPARED.	275.0	275.0	3.9	SEP 82	SEP 82
M 80 6350 2641	MECHANICALLY INDUCED CRACKS FOR NDT STANDARDS NARROW SLOTS WERE MACHINED IN A PLAIN CARBON STEEL PLATE USING A SLITTING SAW. SUBSEQUENT DEFORMATION PROCESSING WAS PARTIALLY SUCCESSFUL IN CLOSING THESE SLOTS.	60.0	60.0	1.8	OCT 81	OCT 81
M 80 6350 2642	ADVANCED PENETRATING RADIATION TECH F/PRODUCT EVALUATION A NUMBER OF FORMER MT TASKS HAVE BEEN COMBINED UNDER THIS EFFORT. THESE TASKS ARE - HIGH RESOLUTION RADIOGRAPHY, NEUTRON RADIOGRAPHY, RADIONOMETRY, RADIOGRAPHIC QUALIFICATION. THE MMIS DOES NOT MAINTAIN DATA ON SUB-TASKS.	180.0	180.0	40.0	SEP 80	SEP 80
M 78 6370	OPTIMIZATION OF MMTP PROGRAM EFFECTIVENESS ***** DELINQUENT STATUS REPORT *****	283.5	33.5	33.5	FEB 80	DEC 80
M 79 6390	PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER ***** DELINQUENT STATUS REPORT *****	250.0	191.5	12.8	JUN 80	DEC 80
M 80 6390	MMTP PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER ***** DELINQUENT STATUS REPORT *****	250.0	250.0	0.0	MAR 81	MAR 81

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		VALUES (\$000)	DATE	VALUES (\$000)	DATE	(\$000)	DATE	(\$000)	DATE
G 80 0001	VOICE CONTROLLED PROGRAMMING OF COMPUTERS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.		92.0						
4 7T 5052	ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT FINAL DRAFT MANUSCRIPT REVIEWED ON 706-100 DESIGN GUIDE FOR PRODUCIBILITY HANDBOOK. CONTINUED WORK ON DYNAMICS OF BALLISTIC IMPACT AND DEVELOPMENT GUIDE FOR RELIABILITY HANDBOOKS.	383.0	MAR 81	383.0	JUN 78	383.0	JUN 78	383.0	MAR 81
4 77 5052	ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK IN EXPERIMENTAL STATISTICS, RECOIL SYSTEMS, AND SAFETY ENGINEERING, PLUS OTHER TECHNICAL AREAS.	305.0	JUN 81	208.0	SEP 79	97.0	SEP 79	97.0	JUN 81
D 78 5052	ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK IN WIRING TECHNIQUES IN GROUND AND AIRBORNE SYSTEMS AND QUALITY ENGINEERING, PLUS OTHER TECHNICAL AREAS.	870.0	JAN 82	672.0	NOV 79	76.4	NOV 79	76.4	JAN 82
D 79 5052	ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK ON DESIGN GUIDE FOR PRODUCIBILITY AND FABRICATION OF CONTINUOUS FIBER REINFORCED PLASTICS, PLUS OTHER TECHNICAL AREAS.	495.0	MAY 83	387.8	MAY 83	64.8	MAY 83	64.8	MAY 83
D 80 5052	ARMY ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT RFP ISSUED DURING PERIOD.	460.0	JAN 83	186.0	JAN 83	186.0	JAN 83	186.0	JAN 83

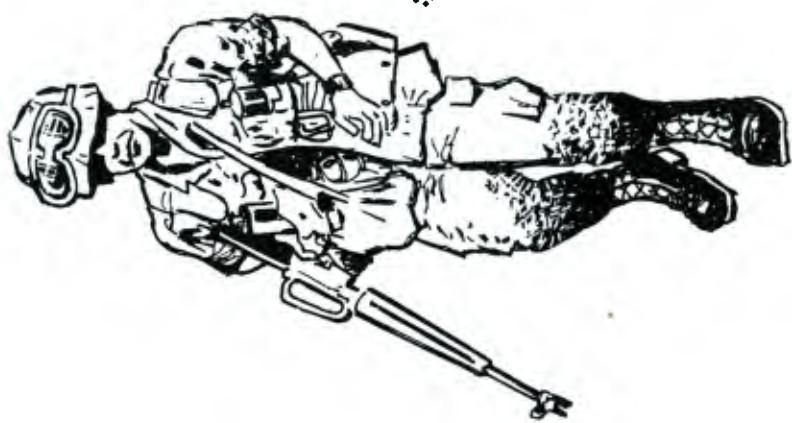
RUBBER HANDWARE



CLOTHING PATTERNS



HELMETS



NATICK R&D COMMAND  
(NARADCOM)

NATICK RESEARCH AND DEVELOPMENT COMMAND  
CURRENT FUNDING STATUS, 1ST CY80

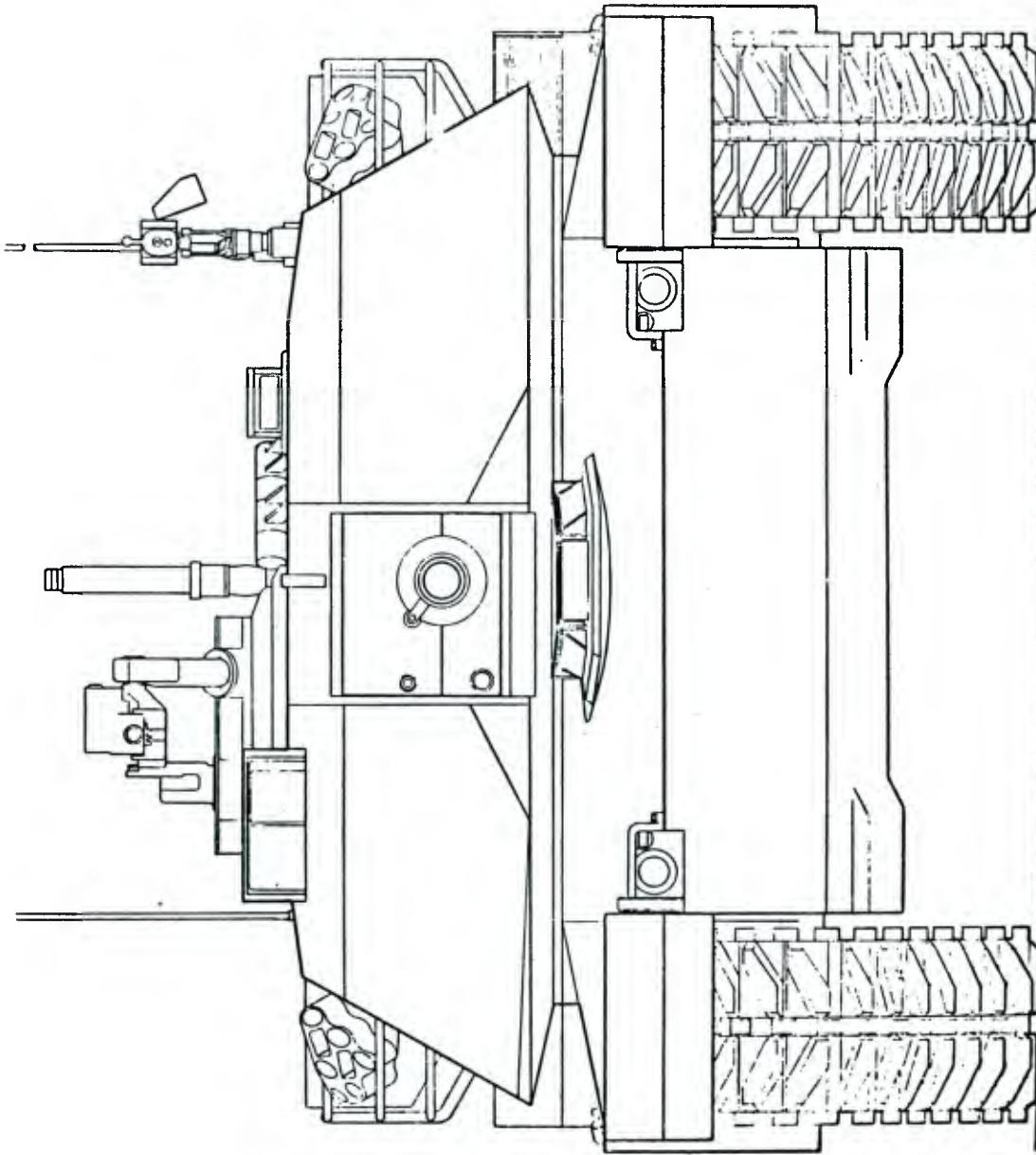
CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT FUNDING		REMAINING (\$)	INHOUSE FUNDING EXPENDED ( \$ )
			ALLOCATED ( \$ )	EXPENDED ( \$ )		
76	2	527,700	404,800	404,800 (100%)	122,900	122,900 (100%)
77	0	0	0	0 ( 0%)	0	0 ( 0%)
77	1	253,500	160,900	146,500 ( 91%)	92,600	57,000 ( 61%)
78	0	0	0	0 ( 0%)	0	0 ( 0%)
79	2	760,400	726,800	726,800 ( 0%)	33,600	28,700 ( 85%)
80	0	0	0	0 ( 0%)	0	0 ( 0%)
81	0	0	0	0 ( 0%)	0	0 ( 0%)
82	0	0	0	0 ( 0%)	0	0 ( 0%)
TOTAL	5	1,541,600	1,292,500	551,300 ( 42%)	249,100	208,600 ( 83%)

INHOUSE REMAINING 16%

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
<hr/>						
7 76 8035	AUTOMATED PRODUCTION OF INSULATED FOOTWEAR ***** DELINQUENT STATUS REPORT *****	390.0	320.5	69.5	OCT 78	JUL 80
7 76 8036	NUMERICALLY CONTROLLED HELMET DIE SINKING ***** DELINQUENT STATUS REPORT *****	137.7	84.3	53.4	SEP 77	DEC 80
Q 77 8053	CADAM OF PARACHUTE HARDWARE A STUDY OF FORGING PRACTICES WAS COMPLETED. BASED UPON THIS REPORT DESIGN RULES FOR USE IN THE DEVELOPMENT OF CAD SOFTWARE WERE DEVELOPED. LIMITATIONS IMPOSED ON CONTRACTOR ACCESS TO THE NARADCOM COMPUTER ARE DELAYING SOFTWARE DEVELOPMENT.	253.5	160.9	57.0	MAR 78	JUN 81
Q 79 8063	IMPROVED METHODS OF MFG OF BUTYL RUBBER HANDWEAR ***** DELINQUENT STATUS REPORT *****	457.7	429.1	28.7	JUN 82	JUN 82
Q 79 8066	CONTINUOUS FILAMENT HELMET PREFORM ***** DELINQUENT STATUS REPORT *****	302.7	297.7	MAR 81	MAR 81	MAR 81



TANK-AUTOMOTIVE MATERIEL READINESS COMMAND  
(TARADCOM)

TANK-AUTOMOTIVE MATERIEL READINESS COMMAND  
(TARCOM)

## TANK-AUTO R&amp;D COMMAND AND TANK-AUTO MATERIEL READINESS COMMAND

## CURRENT FUNDING STATUS, 1ST CY80

FISCAL YEAR.	NO. OF PROJECTS	AUTHORIZED FUNDS ( \$ )	CONTRACT ALLOCATED ( \$ )	INHOUSE FUNDING	
				EXPENDED ( \$ )	REMAINING ( \$ )
76	1	325,000	162,000	145,000 ( 89%)	163,000 ( 65%)
77	1	500,000	356,600	302,400 ( 84%)	143,400 ( 18%)
77	1	560,000	490,000	375,000 ( 76%)	70,000 (100%)
78	8	4,333,000	3,433,100	1,845,300 ( 53%)	899,900 ( 89%)
79	14	4,420,400	2,115,200	1,508,500 ( 71%)	2,305,200 ( 10%)
80	9	3,130,000	1,305,800	869,400 ( 66%)	1,824,200 ( 2%)
81	0	0	0	0 ( 0%)	0 ( 0%)
82	0	0	0	0 ( 0%)	0 ( 0%)
TOTAL	34	13,268,400	7,862,700	5,045,600 ( 64%)	5,405,700 ( 24%)

AUTHORIZED FUNDING CONTRACT ALLOCATED 59% INHOUSE REMAINING 40%

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM  
SUMMARY PROJECT STATUS REPORT  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCTM-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
T 78 4264	TRACK INSERTS AND FILLERS FOR TRACK RUBBER PADS TEST BED VEHICLE AND SUPPORT PARTS DELIVERED. IN ALL IT WAS TESTED ON 2000 MILES OF PAVED ROADS, 10000 MILES ON SECONDARY RDADS AND 500 MILES CROSS COUNTRY. FINAL REPORT OF THIS PHASE I IS BEING PREPARED.	520.0	291.6	197.0	JAN 81	AUG 80
4 76 4563	ROTATIONAL MOLDING OF LARGE CAPACITY FUEL TANKS. RECEIVED M551 FUEL TANKS WITH AIR VENTS. TESTING CARRIED OUT AND RESULTS SUGGEST THIS ITEM READY FOR PRODUCTION. M68 TANKS FINALLY RECEIVED BUT COULD NOT BE TESTED. FINAL REPORT NOW IN PROGRESS.	325.0	162.0	106.0	JUN 77	DEC 80
T 79 4575	LASER WELDING TECHNIQUES FOR MILITARY VEHICLES WELDED SAMPLES ARE BEING PREPARED FOR BALLISTIC TESTING.	375.0	300.1	9.2	JUL 81	DEC 80
T 79 4586	IMPROVED LARGE ARMOR STEEL CASTINGS- PHASE 1 ADDITIONAL 5-INCH PLATES HAVE BEEN PROVIDED FOR ADDITIONAL BALLISTIC TESTING. INITIAL BALLISTIC RESULTS INDICATE THAT CAST PLATES EQUIVALENT TO ROLLED PLATES ARE BEING OBTAINED.	967.0	422.7	82.4	OCT 80	MAR 81
T 79 5002	FABRICATING TORSION SPRINGS FROM HIGH STRENGTH STEELS DUE TO NON-AVAILABILITY OF VIM AND VAR 8660 STEEL, PROGRAM IS CHANGED TO 4150, 4350, AND 1345 HOT ROLLED STEELS. THE PR WAS MADE TO REFLECT THE CHANGES AND WAS SUBMITTED FOR SOURCE SOLICITATION. SCHEDULE IS REVISED TO REFLECT RESULTANT SLIPPAGE.	150.0		28.0	FEB 81	SEP 81
T 79 5007	ADVANCED TECHNOLOGY BRAKE LINING MATERIALS-PHASE 2 SAMPLE LININGS HAVE BEEN MADE AND TESTED. RESULTS SHOW THAT LININGS ARE SATISFACTORY.	190.0	20.0	12.0	JUN 81	JUN 81
T 77 5014	IMPROVED FOUNDRY CASTINGS UTILIZING CAM WORK CONTINUES ON DEVELOPING THE COMPUTER PROGRAMS.	560.0	490.0	70.0	SEP 79	MAR 81
T 78 5014	IMPROVED FOUNDRY CASTINGS UTILIZING CAM HEAT FLOW ANALYSIS IS SHOWING GOOD AGREEMENT WITH EXPERIMENTAL RESULTS.	415.0	195.3	207.0	JAN 81	NOV 81
4 78 5019	PLASTIC CONTAINER FOR LOW MAINTENANCE DRY CHARGED BATTERY LAB PERFORMANCE TESTS ON PROTOTYPE GTN LOW MAINTENANCE BATTERIES COMPLETED. FIELD EVALUATION TESTS AT TECOM ARE COMPLETE. INITIAL DRAFT OF LOW MAINTENANCE BATTERY PERFORMANCE SPECIFICATION HAS BEEN PREPARED.	160.0		145.0	SEP 79	AUG 80
T 80 5019	STORAGE BATTERY, LOW MAINTENANCE-PHASE III FUNDING REDUCED IN APRIL. SCOPE OF WORK AND SCHEDULE OF PROGRAM REALIGNED TO REFLECT \$260K WITHDRAWN FUNDING BY DARCOM. AN RFP IS BEING PREPARED FOR PROPOSALS AND EVALUATION IN PREPARATION FOR CONTRACT AWARD UPON RECEIPT OF FY81 FUNDING.	30.0		10.0	DEC 82	DEC 82

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRMT-301

PROJ No.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
T 78 5024	CAM GEAR DIE DESIGN AND MANUFACTURING PHASE I. A SET OF COMPUTER PROGRAMS HAS BEEN DEVELOPED TO DEFINE THE EXACT TOOTH FORM OF A HYPOID OR SPIRAL GEAR OR PINION. THE MAJOR PORTION OF THE STRESS AND TEMPERATURE ANALYSES HAVE BEEN PROGRAMMED. COMPUTER PROGRAMS ARE BEING --- SEE PROJECT T79 5024.		200.0	160.0	40.0	JUN 80 DEC 82
T 79 5024	GEAR DESIGN MFG UTILIZING COMPUTER TECHNOLOGY. CAN-PH2 CONT FROM PROJECT T78 5024 --- WRITTEN TO GENERATE A MESH SYSTEM FOR THE FINITE ELEMENT ELASTIC ANALYSIS OF THE DIE AND SOME CHANGES IN THE SHAPE OF THE MESH GENERATED FOR DETERMINING TEMP. DISTRIBUTION IN BOTH THE GEAR TOOTH AND DIE HAVE BEEN MADE.		205.0	112.7	JUN 80	DEC 82
T 80 5045	SPALL SUPPRESSIVE ARMOR FOR COMBAT VEHICLES (PHASE II) FMC HAS INITIATED THE DESIGN OF FIXTURES AND IS INVESTIGATING THE VARIOUS METHODS FOR ATTACHMENT OF THE SPALL LINER SYSTEM		86.0	56.0	9.0	NOV 81 NOV 81
T 79 5054	LASER SURFACE HARDED COMBAT VEHICLE COMPONENTS-PHASE 1 CONTRACTOR HAS SELECTED COMPONENTS WHICH WILL BE THE FIRST SAMPLES TO BE LASER HEAT TREATED. HEAT TREAT OPERATIONS BEGAN DURING THIS REPORTING PERIOD.		175.0	102.7	17.7	JUL 80 OCT 80
T 79 5064	LIGHT WEIGHT SADDLE TANK-PHASE 2 5-TON FUEL TANK TESTING CONTINUED. SOME LEAKAGE IN FITTINGS. TANKS DISTORTED DUE TO LACK OF RIBS AND HEAVY WEIGHT WHEN FILLED. HOWEVER STILL SERVICEABLE. NEW CONTRACT READIED FOR ALUMINUM MOLD FOR CASTING TANKS W/RIBS. 2.5-TON TANK TESTING CANCELLED.		196.8	107.0	11.0	FEB 81 DEC 81
T 79 5067	PLASTIC BATTERY BOX SOLE SOURCE PROCUREMENT REQUEST PREPARED. PROCUREMENT REQUESTS ADVERTISED FOR SOLICITATION TWICE. ONE WAS NON-RESPONSIVE TO THE RFP AND THE OTHER WAS OVER 400 PCT OF THE INDEPENDENT GOVERNMENT COST ESTIMATE.		156.6	18.0	18.0	OCT 79 MAR 81
T 80 5068	PLASTIC BATTERY BOX (PHASE II) PROCEDURES AND TEST SITES WERE SELECTED FOR ON VEHICLE FIELD TESTS OF PLASTIC BOXES ON M39 AND M809 NEW ANTI-CORROSIVE MATERIALS AND TECHNIQUES (PHASE 1) PROCUREMENT ACTION INITIATED.		30.0	2.0	2.0	FEB 82 FEB 82
T 79 5082	FLEXIBLE MACHINING SYSTEMS PILOT LINE FOR TCV COMPONENTS THE FIRST PHASE OF THIS PROJECT IS COMPLETE. FINANCIAL CLOSE OUT IS SCHEDULED FOR DEC 80. WORK IS CONTINUING UNDER PHASE II. SEE PROJECT T&O 5082. THE CONTRACTOR FOR THIS ENTIRE PROGRAM IS C.S. DRAPER LABORATORIES, INC.		440.0	395.0	10.9	MAR 80 DEC 80

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCDT-301

PROJ No.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
T 80 5082	FLEXIBLE MACHINING SYSTEM, PILOT LINE FOR TCV COMPONENTS PHASE II IS CONTINUING THE ACTIVITIES INITIATED IN PHASE I TOWARDS PROVIDING GUIDANCE AND SOFTWARE SUPPORT IN SELECTING AND OPERATING A FMS. THE CONTRACTOR IS WORKING WITH HUGHES AIRCRAFT, AVCO, LYCOMING, G.E. PITTSFIELD AND ROCK ISLAND ARSENAL.	880.0	813•4	9•4	JAN 81	JAN 81
T 79 5083	UPSCALING OF ADVANCED POWDERED METALLURGY PROCESSES-PH 3 PROGRAM HAS BEEN REDIRECTED TOWARD PRODUCING NECESSARY DRIVE GEARS FOR THE AGT 1500 ENGINE.	478.0	179.0	14.0	MAR 81	APR 82
T 78 5085	PRODUCTION TECHNIQUES FOR FABRICATION OF TURBINE RECUPERATOR THE EQUIPMENT PROBLEMS WITH THE BOC LASER HAVE BEEN SOLVED. ANOTHER APPROACH TO WELDING THE RECUPERATOR IS BEING INVESTIGATED.	871.0	766.0	91.0	JAN 80	OCT 81
T 80 5085	TURBINE RECUPERATOR THE EQUIPMENT PROBLEMS ENCOUNTERED WITH THE BOC LASER HAVE BEEN SOLVED. A TEST RECUPERATOR INCORPORATING A NEW LASER APPROACH IS BEING FABRICATED FOR EVALUATION.	237.0	207.0	Oct 81	OCT 81	OCT 81
T 79 5090	IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY SEE MMT PROJECT 1 80 5090.	380.0	326.0	13.6	FEB 81	MAY 81
T 80 5090	IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY (PHASE 2) METCUT HAS CONTACTED XM1 PMO AND IS DEVELOPING SOLUTIONS TO CRITICAL MACHINING PROBLEMS AT LIMA AND WARREN PLANTS. WORK IS ALSO IN PROGRESS ON VARIOUS ARMOR PLATE AND CASTING SPECIMENS AND DATA IS BEING ACCUMULATED.	249.0	229.4			MAY 81
T 79 5094	ARMOR STEEL TREATED WITH RARE EARTH ADDITIONS THE MAJORITY OF THE PROGRAM FUNDS HAVE BEEN REPROGRAMMED. THE REMAINING FUNDS MIGHT BE USED TO INITIATE THE EFFORT.	48.0		23.0	SEP 80	MAY 81
T 78 5097	INTEGRALLY CAST LOW COST COMPRESSOR (PHASE II) FIRST AND SECOND STAGE CASTING TOOLING IS BEING FABRICATED.	342.0	267.0	65.0	JUN 80	SEP 80
T 79 6000	LIGHT WEIGHT TILT-UP HOOD FENDER ASSEMBLY-PHASE1 CONTRACT AMENDED TO PROCURE ASSEMBLY FOR M939 5-TON PIP TRUCK. THIS CHANGE NEVER FUNDED AND CONTRACT TERMINATED FOR CONVENIENCE OF GOVERNMENT. DA DIRECTED DARCOM NOT TO USE THE M939 TRUCK CHASSIS AVAILABLE AS A TEST BED.	200.0	150.0		SEP 81	DEC 80
T 78 6023	FABRICATION OF FLAT THIN GAGE ALLOY STEEL PLATE CONTRACTOR HAS FABRICATED REQUIRED PLATE AND PREPARED A DRAFT OF THE FINAL REPORT.	195.0	123.2	62.0	OCT 79	SEP 80

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
 1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS	AUTHO- RIZED	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
T 78 6035	ESTABLISH ON-LINE NDT FOR TRACKED COMBAT VEHICLE(S)(PHASE 1) ***** DELINQUENT STATUS REPORT *****		1•630•0	1•630•0	APR 81	APR 81
T .79 6038	HIGH DEPOSITION WELDING PROCUREMENT ACTION HAS BEEN INITIATED.		459•0	9•0	JUL 80	MAR 83
T 80 6057	XMI COMBAT VEHICLE PROCUREMENT TEST WAS MADE AND SUBMITTED FOR SOURCE SOLICITATION. THE PR IS CURRENTLY UNDERGOING SOURCE SOLICITATION.		1•088•0		OCT 82	OCT 82
T 80 6059	LARGE CAST ALUMINUM COMPONENTS THE PREPARATION OF A CONTRACT IS IN PROGRESS. THE AWARD IS SCHEDULED TO OCCUR IN OCTOBER.		515•0		JUL 81	JUL 81

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRGMI-301

PROJ NO.	TITLE + STATUS	AUTHO-RIZED (\$000)	CONTRACT VALUES (\$000)	EXPENDED LABOR AND MATERIAL (\$000)	ORIGINAL PROJECTED COMPLETE DATE	PRESENT PROJECTED COMPLETE DATE
4 7T 4568	TECH DATA/CONFIGURATION MANAGEMENT SYSTEM (TD/CMS) COMPUTER PROGRAMS WERE PREPARED AND TESTED. GOVERNMENT PERSONNEL WERE TRAINED FOR IMPLEMENTATION OF NEW SYSTEM. INTERNAL REORGANIZATION WAS COMPLETED TO ACCEPT THE NEW SYSTEM.	500.0	356.6	26.6	JUN 79	SEP 80

## APPENDICES

## APPENDIX I: Command Identification

APPENDIX I: ARMY ACTION COMMAND/ACTIVITY IDENTIFICATION

<u>Action Command</u>	<u>Acronym</u>	<u>Command Identifier</u>
Test & Evaluation Command	TECOM	0
Aviation R&D Command	AVRADCOM	1
Communications & Electronics Command	CERCOM	2
Missile Command	MICOM	3
Tank-Automotive Materiel Readiness Command	TARCOM	4
Armament Materiel Readiness Command (Munitions)	ARRCOM (Ammo)	5
Armament R&D Command (Munitions)	ARRADCOM (Ammo)	8
Armament Materiel Readiness Command (Weapons)	ARRCOM (Wpns)	6
Armament R&D Command (Weapons)	ARRADCOM (Wpns)	9
Troop Support & Aviation Materiel Readiness Command	TSARCOM	7
Materiel Development & Readiness Command	DARCOM	D
Mobility Equipment R&D Command	MERADCOM	E
Communications R&D Command	CORADCOM	F
Depot Systems Command	DESCOM	G
Electronics R&D Command	ERADCOM	H
Army Materials and Mechanics Research Center	AMMRC	M
Natick R&D Command	NARADCOM	Q
Tank-Automotive R&D Command	TARADCOM	T

NOTE: Abbreviation - R&D Research and Development

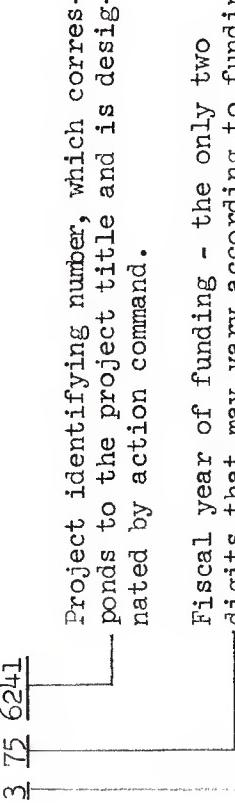
## APENDIX II: User's Guide

S U M M A R Y P R O J E C T S T A T U S R E P O R T  
1ST SEMIANNUAL SUBMISSION CY 80 RCS DRCMT-301

PROJ NO.	TITLE + STATUS		AUTHO- RIZED	CONTRACT VALUES	EXPENDED LABOR AND MATERIAL (\$000)	PRES- ENT PROJECTED COMPLETE DATE	
			(5)	(6)	(7)	(8)	(9)
1 76 8148	PROCESSING ADVANCED GEAR MATERIALS THE 4 SQUARE TESTER IS REPAIRED. A FIBER OPTIC DEVICE WAS INSTALLED TO PERMIT EXAMINATION OF GEAR TEETH WITHOUT DISMANTLING PROTECTIVE SHIELDING AROUND THE MACHINE.		150.0	34.0	112.0	DEC 78	MAR 81

THIS FORM IS USED FOR SUMMARIZING  
 THE MMT PROGRAM PROJECTS' STATUS.  
 USER'S GUIDE BELOW EXPLAINS THE  
 SIGNIFICANCE OF EACH COLUMN HEREIN.

USER'S GUIDE  
to  
SUMMARY PROJECT STATUS REPORT

COLUMN 1.	<u>PROJECT NUMBER</u>	COLUMN 5.	<u>AUTHORIZED</u>
	A project is identified by the first and last four digits which corresponds to the project title for the life of its execution. However, for accounting and reporting purposes, a project is recognized by the totality of its seven-digit numeral or alphanumeric number. Example:		The total amount of funds authorized in dollars, to complete the project.
	3 75 6241	COLUMN 6.	<u>CONTRACT VALUES</u>
			The portion of authorized funds actually expended or obligated for work performed by private industry.
COLUMN 2.	Subtask identifier, if any.	COLUMN 7.	<u>EXPENDED LABOR AND MATERIAL</u>
COLUMN 3.	<u>PROJECT TITLE</u>	COLUMN 8.	<u>ORIGINAL PROJECTED COMPLETION DATE</u>
COLUMN 4.	An abstract of project status taken from the Project Status report. Whenever possible, technical accomplishments during the reporting period were summarized.	COLUMN 9.	<u>PRESENT PROJECTED COMPLETION DATE</u>

## APPENDIX III: Army MMT Program Representatives

ARMY MMT PROGRAM REPRESENTATIVES

HQ, DARCOM

US Army Materiel Development and Readiness Command

ATTN: DRCMT

5001 Eisenhower Avenue  
Alexandria, VA 22333

C: 202 274-8284/8298  
AV: 284-8284/8298

AVRADCOM

US Army Aviation R&D Command

ATTN: DRDAV-EXT, Mr. Robert Vollmer

12th & Spruce Streets  
St. Louis, MO 63166

C: 314 263-1625  
AV: 693-1625

CERCOM

US Army Communications & Electronics Materiel Readiness Command

ATTN: DRSEL-LE-R, Mr. Martin Ides

Fort Monmouth, NJ 07703

C: 201 532-4950  
AV: 992-4950

CORADCOM

US Army Communications R&D Command

ATTN: DRDCO-PPA-TP, Mr. Al Feddeler/Sam Esposito/Burton Resnic

Building 2700

Fort Monmouth, NJ 07703

C: 201 535-2418/4262/4026  
AV: 995-2418/4262/4026

ERADCOM

US Army Electronics R&D Command

ATTN: DELET-R, Mr. Joseph Key

Fort Monmouth, NJ 07703

C: 201 544-4258  
AV: 995-4258

MICOM

US Army Missile Command

ATTN: DRSMI-ET, Mr. Ray Farison

Redstone Arsenal, AL 35809

C: 205 876-1835  
AV: 746-1835

TARADCOM

US Army Tank-Automotive R&D Command

ATTN: DRDTA-KP, DRDTA-RCK, Dr. Jim Chevalier

Warren, MI 48090

C: 313 573-2065/1814/2467  
AV: 273-2065/1814/2467

TARCOM

US Army Tank-Automotive Materiel Readiness Command

ATTN: DRSTA-EB, Ms. Vivian Buarkhalter

Warren, MI 48090

C: 313 573-2074/2545  
AV: 273-2074/2545

ARRCOM

US Army Armament Materiel Readiness Command

ATTN: DRSAR-IRB, Mr. August Zahatko

Rock Island Arsenal

Rock Island, IL 61299

C: 309 794-4485/3730  
AV: 793-4485/3730

ARRADCOM

US Army Armament R&D Command

ATTN: DRDAR-PML, Mr. Donald J. Fischer

Dover, NJ 07801

C: 201 328-6714/6715  
AV: 880-6714/6715

**TSARCOM**  
US Army Troop Support and Aviation Materiel Readiness Command  
ATTN: DRSTS-PLEP(2), Mr. Don G. Doll  
4300 Goodfellow Blvd.  
St. Louis, MO 63120 C: 314 263-3040  
AV: 693-3040

**MERADCOM**  
US Army Mobility Equipment R&D Command  
ATTN: DRDME-UPE, Mr. R. Goehner  
Fort Belvoir, VA 22060 C: 703 664-5530  
AV: 354-5530

**NARADCOM**  
US Army Natick R&D Command  
ATTN: DRDNA-EZM, Mr. Frank Civilikas  
Natick, MA 01760 C: 617 653-1000, x2793/4  
AV: 955-2349/2351

**TECOM**  
US Army Test & Evaluation Command  
ATTN: DRSTE-AD-M, Mr. Grover Shelton  
Aberdeen Proving Ground, MD 21005 C: 301 278-3677  
AV: 283-3677

**AMMRC**  
US Army Materials & Mechanics Research Center  
ATTN: DRXMR-PMT, Mr. Raymond Farrow  
Watertown, MA 02172 C: 617 923-3523  
AV: 955-3523

**HDL**  
Harry Diamond Laboratories  
ATTN: DELHD-PP, Mr. Julius Hoke  
2800 Powder Mill Road  
Adelphi, MD 20783 C: 202 394-1551  
AV: 290-1551

Rock Island Arsenal  
ATTN: SARRI-ENM, Mr. Joseph DiBenedetto  
Rock Island, IL 61299 C: 309 794-4627/4584  
AV: 793-4627/4584

Watervliet Arsenal  
ATTN: SARWV-PPI, Mr. L. A. Jette  
Watervliet, NY 12189 C: 518 266-5318  
AV: 974-5318

US Army Munitions Production Base Modernization Agency  
ATTN: SARPM-PBM, Mr. Joseph Taglairino  
Dover, NJ 07801 C: 201 328-6708  
AV: 880-6708

**AMRDL**  
US Army Applied Technology Laboratory  
USARTL (AVRADCOM)  
ATTN: DAVDL-ATL-TAS, Mr. L. Thomas Mazza  
Fort Eustis, VA 23604 C: 804 878-5732  
AV: 927-5732

**DESCOM**  
US Army Depot System Command  
ATTN: DRSDS-PE, Mr. Jim Shindle  
Chambersburg, PA 17201 C: 717 263-6321  
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